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# UNIVERSITY OF WYOMING.

## **Agricultural College Department.**

# WYOMING EXPERIMENT STATION, LARAMIE, WYOMING.

## BULLETIN NO. 62.

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## Some Food Products and Their Adulteration.

By HENRY G. KNIGHT and ROSS B. MOODY.

Bulletins will be sent free upon request. Address: Director  
Experiment Station, Laramie, Wyo.

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## Some Food Products and Their Adulteration.

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BY HENRY G. KNIGHT AND ROSS B. MOUDY.

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Since the Pure Food law went into effect last September we have received and analyzed 425 samples of food products. We have also passed upon the labeling of a large number of other samples. We have been in communication with a number of manufacturers and jobbers, trying to aid all those who are making efforts to get their goods in shape to comply with the requirements of the Wyoming Pure Food laws. A large number of the analyses have been made for wholesale dealers shipping goods into the State. The work has thus been largely educational. We believed that a great deal more could be accomplished in that way up to the present time, as in the majority of cases the merchant is innocent of any intent of violating the law, but has no means of knowing whether the goods he carries are pure or not.

Of the total number of samples analyzed, 268 were found to be adulterated or misbranded under the law. In every case where goods were found to be adulterated the health officer of the county and the merchant of whom the samples were obtained were notified.

Most of the food products used in Wyoming are shipped in from other States. This makes it necessary that the foods be preserved in some manner, in order that they may reach the consumer in even a saleable, not to say wholesome, condition. The prevailing method of packing goods in cans and packages, while it prevents close personal supervision for purity and cleanliness (which is easy where the markets are supplied from

the immediate neighborhood), at the same time makes the general supervision and control of food products easier than where the foods are home grown.

It is surely working no hardship on a manufacturer or packer to require him to inform the customer just what he is purchasing and consuming. This protects the manufacturer of pure goods, as he is not compelled to compete blindly against the producer of adulterated products, and a better grade of goods is the general result.

The merchants throughout the State have taken a great deal of interest in the work of the State Chemist and numerous samples have been submitted for analysis, and in many cases the analyses have been made public by the merchants themselves in the interest of pure goods. Mr. Metcalf of Buffalo, soon after the Pure Food law went into effect, took the unique method of sending numbered bottles which were filled from his stock of goods in the presence of witnesses. The analyses were made public by him.

Samples should be sent in unbroken packages, where possible.

The State Chemist regards it as his primary duty to assist and co-operate with local dealers and jobbers in securing pure and honest foods, drinks and drugs. Putting false brands on these products should be prevented and all "mavericks" excluded from the State.

We are greatly indebted to Mr. J. S. Atherly, Dr. R. Harvey Reed, Mr. W. J. Thom, Miss Harriet Knight, Mrs. Charles Stone, Dr. J. L. Wicks, Dr. Dana C. Carter, Dr. A. W. Barber, Mr. E. D. Metcalf and others for their help in collecting samples.

#### EXTENT OF ADULTERATION.

Dr. Wiley has made the statement that probably 95 per cent. of all food products have been adulterated at some time

in some country, but he estimates that scarcely 5 per cent. of the food products bought at random, other than spices and ground coffee, would now be found adulterated.\*

Of the samples analyzed since the Pure Food law went into effect, 268 were found to be either adulterated or misbranded. This is a much larger percentage than is given in his estimate, although it is probable that it does not represent the true percentage of adulteration, as a large number of samples were suspected samples, and others of the lowest grade possible to procure.

There seems to be a general agreement that foods of American origin have improved in purity during recent years, and along some lines it seems to be true. Some manufacturers take pride in the purity of their products, and sell the goods upon their merits at a fair profit.

They have the adulterated goods to compete against, which are generally very attractive in their general appearance, and it is only by costly advertisement, for which the consumer must pay in the end, that the manufacturers of pure goods are able to successfully compete against the highly colored adulterated goods which are on the market.

There is a larger profit for the retail dealer in handling adulterated goods, and for that reason they are placed before the customer in preference to the pure goods which may be found on his shelves.

Many manufacturers put upon the market two classes of goods—one sold at a high price, which is not adulterated and which is well advertised; the other adulterated and at a much lower price. The product cheaper in price generally contains cheaper and poorer materials than the pure goods, besides being adulterated. The unsuspecting public buy upon the reputation of the goods and often times do not realize they are losing in buying the cheaper article.

\*Senate Report No. 516, Adulteration of Food Products, pp. 44, 585.

Adulterations are carried to such an extent that it may be said truthfully that the adulterant is often times adulterated.

Below may be found some of the adulterants used, as have been found in this laboratory:

Spices are adulterated by the wholesale by adding some inferior material, wheat products, etc., to give bulk, or by extracting the essential oils in part. It seems to be a rather difficult matter to procure pure spices in Wyoming.

Meats are preserved in borax and sausages contain a red dye to give an inviting color.

Syrups are made up largely of glucose, which costs the manufacturers only a few cents a gallon, and the mixture is sold at a large profit.

Jellies and jams often contain glucose, gelatine and perhaps some preservative, and an aniline dye, to give the color that makes the "store" goods look so much more inviting than the home made product.

Catsups are preserved with benzoate of soda, benzoic acid or some other modern preservative, and colored with an aniline dye.

Extracts for flavoring in many cases are not made from the material claimed. Some lemon extracts contain no lemon oil whatever. Vanilla substitutes are made from the tonka bean; and there are others that could claim as marked a reputation for the fraud perpetrated.

Milk is often watered or skimmed, or both, and a preservative added. The preservative added is generally formaldehyde, which is used to insure the milk reaching the customers in a saleable condition. Chemically preserved milk is often fed to the babies, with effects of which we sometimes have our suspicion.

Oysters are preserved with formaldehyde. In fact, we have yet to receive a sample that has not been preserved in that manner.

Pickles we have found to contain copper salts to fix the green color. A few samples contained a preservative also.

Canned vegetables are "soaked" goods in a number of cases; preservatives have been found in a large number of cases, and analine dyes, or other coloring matter, not always harmless, as one of the ingredients.

Canned fruits are often colored and a preservative added. Some vegetables and fruits contain acids which attack the tin, forming a poisonous compound. Attention may be called to the danger of getting soluble salts of lead and tin from the accidental dropping of solder into canned vegetables and fruits—and from the use of a large portion of lead in the tin of which the cans are made. The excess of lead causes what is known as painter's colic. It is not advisable to allow vegetables or fruits to stand in the cans for any length of time after having been opened.

Distilled vinegar made from the destructive distillation of wood is colored with burned sugar and sold as cider vinegar. The retailer often times adds water to fill up until the customer is practically paying for so much sour water.

The stronger spirituous liquors are in many cases nothing but a low grade of alcohol, flavored and colored. In wines and beer preservatives are used, and they are adulterated so as to put out a cheaper product.

Packages are often under weight, which gives a direct profit to the manufacturer.

### PRESERVATIVES.

Decay in organic material, which was formerly supposed to be produced by oxidation, is now known to be due to the work of germs or ferments. Anything which kills these germs or suspends their action acts, therefore, as a preservative. Four general methods of preserving food are numerated: (1) Sterilization by heat, (2) refrigeration, (3) dry-

ing, (4) the addition of some antiseptic substance which paralyzes the ferments. There are two general classes of antiseptics: First, those which themselves act as foods and are absorbed as sugar, salt, certain spices, vinegar, etc. The second class do not act as foods. Among those most commonly used as preservatives of the second class are, formaldehyde, various sulphites, ammonium fluoride, borax and borax compounds, salicylic acid, saccharin, benzoic acid and other chemicals to a greater or less extent.

Any antiseptic which paralyzes the ferments which produce decay may be expected to interfere with and retard to a greater or less extent the process of digestion by lessening the activity of the digestive ferments and by paralyzing the cells which secrete the ferment. Many authorities, therefore, contend that the use of antiseptics must be necessarily injurious to health, and this is well illustrated in the cases of delicate individuals and children, who have suffered from consuming foods preserved by chemical antiseptics. The use of antiseptics also encourages the sale and use of inferior foods, or foods which are on the point of being spoiled, and to carelessness in the preparation of foods for a distant market.

We are confronted with this argument: "Yes, we use a chemical preservative, but it is in such small quantities that it is not injurious." If that were the only food product on the market preserved with a chemical preparation, it may be that no ill effects would be suffered by anyone using it, but when the greater part of the foods used in this State are shipped in from neighboring States and the foods are necessarily from two to ten days on the road, the subject of preservatives becomes one of vital importance to the people of Wyoming. If we sit down to a dinner and eat canned vegetables, preserved with salicylic acid, meats containing boric acid, catsup with benzoic acid, canned fruit containing salicylic acid, milk containing formaldehyde, bread containing alum, and a number of these containing a goodly sprinkling of poi-

sonous aniline dyes and perhaps some compounds of copper, the amount of preservatives and poisonous material taken into the stomach is not a negligible factor. A robust, healthy man may suffer no apparent inconvenience from the continuation of such a diet, but for a delicate woman or a child to be compelled to exist upon such a preserved diet is not conducive to good health. Again, many individuals are so constituted that even a very small amount of certain antiseptics cause organic troubles, or at least distinct digestive disturbances.

Chemical preservatives cannot be considered as harmless, and it is now unlawful to use them to preserve food products.

### COLORING MATERIALS.

Certain foods have associated with them certain colors, and we often judge the condition of the food by the color it has. Bolted flour, granulated sugar and starch are white. Vegetables have their characteristic colors. Fruits present different shades of color by means of which the ripeness of the respective fruit is judged. The richness of milk is sometimes judged by the yellow tinge from the globules of butter fat it contains. Fresh meats have a color distinct from spoiled meats.

In the market foods are selected largely by their color. When this is not pleasing the manufacturer often supplies the color, or changes it to the color of a better article. Canned vegetables have their color fixed by a mordant, as copper salts or alum, and instead of the dull color, a pleasing green tint is given to the goods.

Aniline or coal tar dyes are now extensively employed in coloring canned goods, candies, meats, catsups, most preserves and jellies, and many so-called temperance drinks. Many of the coal tar dyes are known to be poisonous.

Prof. Winton writes regarding coal tar dyes (report Connecticut Experiment Station, 1901, p. 180):

"The relation of coal-tar colors to public health first deserves attention. The experiments made with dogs and other animals by Cazeneuve and Lépine, Weyl and others have proved beyond doubt the poisonous nature of picric acid, dinitrocresol and Martius' yellow, among nitro-colors, and orange and metanil yellow among the azo-colors. Fuchsine, sulphonated nitro-colors, and most of the azo-colors tested did not act as poisons, although some of them produced vomiting, others diarrhoea and others, still, developed slight albuminuria.

"Although there is evidence that most of the coal-tar dyes are not injurious to some of the lower animals, it is not safe to assume that they are entirely harmless to human beings. The dog, the animal used in most of Weyl's experiments, has a proverbially strong stomach and eats, with no apparent discomfort, many things which would disturb the digestion of a man.

"The unwholesomeness of certain coal-tar dyes not classed as poisons is indicated by the experience of Weber, who tested their effect on the artificial digestion of fibrin with pepsin and with pancreatin. He found that the oroline yellow (acid yellow) retarded the action of pepsin, and that of methyl orange, saffoline (acridine red) and magenta (fuchsine) seriously interfered with the pancreatic digestion, where the quantity of dye made one part in 1,600 of the solution. Of these, fuchsine, at least, when pure, has been pronounced entirely harmless by earlier investigators, who based their conclusions on experiments with lower animals and some few with men."

In general, coloring matters are used for a fraudulent purpose. They give the foods a more inviting appearance and the purchaser is deceived.

The use of coal-tar colors in food products should be discouraged, especially in foods for children. It is unlawful to use them in foods sold in this State.

## GLUCOSE.

Glucose is a sugar that has come into prominence in recent years as a substitute for cane sugar. The commercial glucose is a sugar made artificially by treating any material containing cellulose, starch or starchy material with a dilute acid and allowing the mixture to stand for some time. Most glucose of commerce is made by treating ground corn with sulphuric acid. The starch in the corn is converted into a new compound, glucose. The sulphuric acid apparently is unchanged, and is precipitated out with calcium carbonate. It is ordinarily made from corn, but can be made from wheat, rye, potatoes, cotton and even sawdust or wood fibre.

A few chemists claim that glucose is not a healthful food,\* and it certainly has not as great a food value as has cane sugar, for which it is substituted. It has not the sweetening power, nor will it readily crystallize, as will cane sugar, and for the latter reason is used universally in commercial jams and jellies, when crystallization of the product would injure the sale. It is also much cheaper than cane sugar.

When starch is mixed with oxalic acid and the mixture allowed to stand for some time a glucose is formed which resembles honey in many ways. This method I believe is not used, however, for preparing adulterants for honey. Probably more than half the strained honey in the market contains a large percentage of glucose as an adulterant.

The glucose of commerce (i. e., that made artificially) must not be confounded with the natural reducing sugars, which are often all classed under the one head, glucose. In this bulletin where glucose is mentioned we refer to the artificial product. Syrups and molasses may often contain a large percentage of reducing sugars and still contain no commercial glucose.

\*Generally all the free sulphuric acid is not taken out of glucose in the commercial method of manufacture. Considerable quantities of free sulphuric acid are found in some of the cheaper glucose syrups. Sulphuric acid is injurious and should not be present in foods.

## KIND AND NUMBER OF SAMPLES ANALYZED.

Article Sampled.	Not Adulterated.	Adulterated or Misbranded.	Total.
Baking powders . . . . .	9	12	21
Canned goods . . . . .	8	118	126
Condensed milk . . . . .	12	1	13
Butter . . . . .	1	0	1
Cheese . . . . .	2	0	2
Milk . . . . .	32	12	44
Lemon extract . . . . .	3	5	8
Vanilla extract . . . . .	0	4	4
Jellies, preserves, etc. . . . .	1	8	9
Meat, fish, oysters, etc. . . . .	3	16	19
Pickles and relishes. . . . .	1	4	5
Spices and condiments. . . . .	48	50	98
Sugar, syrup, candy, honey. . . . .	17	17	34
Catsup . . . . .	0	5	5
Vinegar. . . . .	3	8	11
Alcohol . . . . .	4	0	4
Alcoholic drinks . . . . .	9	7	16
Miscellaneous . . . . .	5	0	5
<hr/>			
Totals . . . . .	157	268	425

In many cases samples were sent to us with a request that the results should not be published. The results of the analyses will be made public, but the name will not be disclosed. In most cases they were samples sent by jobbers doing business in the State.

## BAKING POWDER.

Baking powder is a mixture of sodium bicarbonate and some form of acid salt or acid, together with starch or flour in varying quantities as a filler. A few baking powders containing no filler are on the market. The baking powder is named from the character of the acid content, as cream of tartar, alum, phosphate, alum phosphate and tartaric acid powders.

The efficiency of the different baking powders is about the same in bread baking, whatever may be the acid content; that is, they liberate about the same amount of carbonic acid gas when fresh. What we really pay for is the leavening power, or the available carbondioxide, and any baking powder may be used provided the residue left in the bread is not injurious.

There has been much discussion in regard to baking powders—their relative merits and the healthfulness of the residue left in the bread.\*

It is claimed for cream of tartar or tartaric acid powders that the residue left in the bread is not unhealthful, but even beneficial.

The tartaric acid, or the acid salt, is changed to the neutral salt, and in this form is a gentle laxative. On the other hand, the charge is brought against alum that aluminum compounds do not occur in either animal or vegetable matter which form the natural food of man.† This would not necessarily make it injurious. Alum itself is an astringent, and the questions arise, whether all the alum is decomposed to the hydrate in baking, as it is expected to be; whether the residue is soluble in the digestive juices; whether it is injurious in the amounts present in the bread.

\*An acid residue is not desirable in baking powders. Most baking powders show an alkaline reaction after boiling with water.

†It has been claimed that the prejudice against alum baking powder is kept alive by advertising or reading matter paid for by the manufacturers of cream of tartar baking powder known as the baking powder trust. Senate report No. 516, Adulteration of Food Products, pp. 87-89, 531-532, 230.

## Baking Powders

Laboratory No.	Date of collection.	Name taken from label.	From whom and where obtained.
214	Oct. 1, 1903 . . .	Schilling's Best . . . . .	A. Schilling & Co., San Francisco . . .
274	Oct. 15, 1903 . . .	Royal . . . . .	Peabody Grocery Co., Laramie . . .
327	Oct. 2, 1903 . . .	Dr. Prices Cream . . . . .	Peabody Grocery Co., Laramie . . .
285†	Dec. 15, 1903 . . .	Golden Gate . . . . .	E. D. Metcalt, Buffalo . . . . .
286‡	Dec. 15, 1903 . . .	Schilling's Best . . . . .	E. D. Metcalf, Buffalo . . . . .
310	Dec 17, 1903 . . .	Schilling's Best Pioneer . . . . .	W. H. Holliday Grocery Co., Laramie . . . . .
283‡	Dec. 15, 1903 . . .	Dr. Price's Cream . . . . .	E. D. Metcalf, Buffalo . . . . .
422§	Feb. 23, 1904 . . .	Ideal . . . . .	Adam S. Young, Buffalo . . . . .
284‡	Dec. 15, 1903 . . .	Hunt's Perfect . . . . .	E. D. Metcalf, Buffalo . . . . .

## Baking Powders

Laboratory No.	Date of collection.	Name taken from label.	From whom and where obtained.
213	Nov. 18, 1903 . . .	Pride Brand . . . . .	Midland Grocery Co., Denver, Colo . . .
215	Nov. 2, 1903 . . .	Cream Tartar and Soda . . . . .	Gem City Grocery Co., Laramie . . .
287‡	Dec. 15, 1903 . . .	Calumet . . . . .	E. D. Metcalf, Buffalo . . .
320	Jan. 12, 1904 . . .	K. C . . . . .	A. S. Peabody Grocery Co., Laramie . . .
322	Jan. 26, 1904 . . .	Calumet . . . . .	Johnston Grocery, Cheyenne . . .
345	Jan. 26, 1904 . . .	K. C . . . . .	Johnston Grocery, Cheyenne . . .
346	Jan. 26, 1904 . . .	Dainty . . . . .	Ohenstein Bros. Grocery, Cheyenne . . .
355	Feb. 6, 1904 . . .	Cream Tartar and Soda . . . . .	Kelley Grocery, Cheyenne . . .
374	Feb. 2, 1904 . . .	Temple . . . . .	Dawson & Burdett, Evanston . . .
384	Feb. 2, 1904 . . .	Cream Foam . . . . .	Dawson & Burdett, Evanston . . .
401	Feb. 5, 1904 . . .	K. C . . . . .	Evanston Cash Grocery, Evanston . . .
402	Feb. 5, 1904 . . .	Calumet . . . . .	Evanston Cash Grocery, Evanston . . .

†Residue gives acid reaction.

‡Samples sent in bottles with numbers only. Key sent after report had been made.

§Data not complete.

## Not Adulterated.

Laboratory No.	Manufacturer or jobber.	Acid salt.	Carbonic acid gas.		Starch per cent.	Remarks.
			*Available per cent.	Total per cent.		
214	A. Schilling & Co., San Francisco.	Cream tartar.	13.89	15.02	none	No filler.
274	Royal Baking Powder Co.	Cream tartar and tartaric acid.	12.42	13.01	23.98	
327	Price Baking Powder Co.	Cream tartar and tartaric acid.	10.04	10.67	28.43	
285	J. A. Folger & Co., San Francisco.	Cream tartar.	11.24	11.24	none	No filler. Residue of 2.51 per cent cream tartar.
286	A. Schilling & Co.	Cream tartar.	13.85	14.61	none	No filler.
310	A. Schilling & Co.	Cream tartar.	11.98	12.85	none	No fil'er. Sample clamed to have been on shelf 2 yrs.
283	Price Baking Powder Co.	Cream tartar and tartaric acid.	11.63	12.11	28.34	
422	Unknown.	Alum phosphate.	8.75	10.45	26.45	
284	Philip B. Hunt Co., Minneapolis.	Phosphate.	8.96	9.47	39.98	Labeled, "Contains sodium, bicarbonate, phosphnate and starch."

## Adulterated.

Laboratory No.	Manufacturer or jobber.	Acid salt.	Carbonic acid gas.		Starch per cent.	Remarks.
			*Available per cent.	Total per cent.		
213	Mtdland Grocery Co.	Phosphate.	9.88	10.71	42.77	Not labeled with ingredients.
215	Cream Tartar & Soda B'k'g P. Co., Denver, Col.	Alum phosphate	9.94	11.44	42.09	Misrepresented on label. Short weight.
287	Calumet B'k'g Pow. Co.	" "	8.51	10.09	42.39	Ingred'ts not labeled
320	Jaques Mfg. Co., Chicago	" "	9.38	10.26	39.87	" "
322	Calumet B'k'g Pow. Co.	" "	11.37	12.56	39.18	" "
345	Jaques Mfg. Co., Chicago	" "	8.48	9.84	42.87	" "
346	Chicago Spice Co.	" "	8.92	10.05	46.11	" "
355	Cream Tartar & Soda B'k'g P. Co., Denver.	" "	10.34	12.13	42.24	Misrepresented. Short weight.
374	Not on label.	" "	10.68	13.35	40.80	Ingredients not labeled. Manufac'g name not given.
384	Cream Foam Baking Powder Co., Cincinnati	Alum	11.38	11.96	39.37	Ingred'ts not labeled
401	Jaques Mfg. Co., Chicago	Alum phosphate	8.85	10.06	41.94	" "
402	Calumet B'k'g Pow. Co.	" "	11.08	12.09	32.98	" "

\*Leavening power, what we pay for in baking powder.

These are apparently unsettled questions as yet. Most of the cheap baking powders contain alum, as the cost of manufacture is much less than the cost of the manufacture of cream tartar powders, but often it is sold at as high a price.

It is very probable that the healthfulness or unhealthfulness of baking powders is less of a question to be considered than is the question of the wholesomeness of eating bread hot that is made from them. Hot bread cannot be said to be wholesome. Bread made by fermentation is considered to be more healthful than is baking powder bread, and one of the reasons for that is that baking powder is so largely used for making breads which are intended to be eaten hot.

The manufacturers claim that a filler of starch, flour, or some other material, must be used to keep the baking powder from losing its strength. The amount of filler generally ranges from 15 per cent. to as high as 60 per cent. A few baking powders are, however, made without filler, and one or two brands that have come under our notice seem to suffer very little change or loss in strength after a lapse of considerable time. If 15 or 20 per cent. of filler is sufficient to keep the baking powder from deteriorating, the rest can be used only to fill up space, and the purchaser must pay the manufacturer an exorbitant rate for flour or starch which at most as a food costs only a few cents a pound.

The manufacturers make the claim that baking powder is not a food, but a mixture of uncertain composition. Although it enters into food and is itself decomposed in the process of cooking, the residue cannot be said to be a food. Baking powder is of uncertain composition and the leavening power is uncertain. Baking powder is bought for its leavening power, and the writer believes that the available carbon dioxide factor and also the acid content should be printed on the label for the benefit of the purchaser.

## CANNED GOODS.

Vegetables and fruit are now universally packed in airtight tinned cans. That the people of Wyoming use their share of canned goods, no one will doubt after taking a look over the suburbs of the towns throughout the State. It may be said that the greater part of our diet consists of canned goods. Buying goods in cans is the most economical, because of the fact that they will keep for months with little or no change in composition or flavor. Anything except a meat diet would be almost out of the question in some parts of the State, except for the imperishability of canned goods.

Since canned goods are universally used and form such a large part of the foods of the people of Wyoming, they should be given close attention, and all which are not put up from wholesome materials should be excluded from the State.

Most canned goods are cooked in the can and sealed airtight while hot, thus sterilizing and hermetically sealing the goods. Some classes of goods are heated to a temperature only sufficient to kill the ferments which produce decay. This heating does not kill the spores, and even cooking at times does not produce the desired effect. Some trouble is thus experienced by the manufacturers to prevent loss after canning. If a small amount of chemical preservative is added, there is little danger of the goods fermenting. From the results of the analyses of canned goods, it seems that that is what most of the manufacturers are doing with goods which are sent into this State. Salicylic acid, or its salts, are what have been found in nearly every case, although other preservatives are used, but not to such a great extent.

In hominy sulphites are used as a preservative. Sulphur dioxide is used to whiten the food, and that may account for its presence in some cases, but in one test the fumes of sul-

phur dioxide were so strong that they were suffocating. In a few cases coloring material had been added, to give the goods a fresh, inviting appearance.

A few samples of goods we found to have been "soaked." "Soaked" goods are vegetables that have been allowed to mature and are afterward soaked in water and canned. The season for green vegetables is rather short, and if the supply is greater than can well be handled by the cannery, it is an advantage to allow them to mature, and then they can be canned at leisure. Peas, beans and corn are the vegetables generally found as "soaked" goods. "Soaked" goods are the cheapest grade of vegetables known, and lack the flavor that the canned green product has. It is an imposition to offer such goods without letting the public know what they are buying before the can is opened.

All "soaked" goods must be labeled as such.

## Canned Goods.\*

No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained	Antiseptic	Remarks
501	Feb 23, 1904	Victory Brand Lima Beans.	The John Boyle Co., Baltimore, Md. . . . .	Adams & Young, Buffalo	Saicylic acid	Illegal
502	"	Victory String Beans.	" . . . . .	" . . . . .	" . . . . .	" . . . . .
513	"	Oval Brand Baked Beans.	A. Booth & Co., Baltimore, Md. . . . .	" . . . . .	" . . . . .	" . . . . .
514	Mar. 9, 1904	Forest City Brand Stringless Beans.	Forest City Canning Co., Forest City, Mo. . . . .	Zane & Richardson, Basin	" . . . . .	" . . . . .
512	Feb. 23, 1904	Star Brand Pork and Beans.	Armon Packing Co., Chicago, Ill. . . . .	Adams & Young, Buffalo	" . . . . .	" . . . . .
521	May 2, 1904	Flag Brand Lima Beans . . .	Fort Stanwix Canning Co., Rome, N. Y. . . . .	A. S. Peabody Grocery, Laramie . . . . .	" . . . . .	" . . . . .
524	"	Van Camp's Pork and Beans.	Van Camp Packing Co. . . . .	" . . . . .	" . . . . .	" . . . . .
549	"	Clipper Brand String Beans.	Wm. Numsen & Sons, Baltimore, Md. . . . .	Gem City Groc., Laramie	" . . . . .	" . . . . .
550	"	California Lima Beans. . . .	E. G. Daily Co., Detroit . . . . .	A. S. Peabody Grocery, Laramie . . . . .	" . . . . .	" . . . . .
551	"	Casino Brand String Beans. .	Franklin Mac Veagh, Chicago . . . . .	W. H. Holliday Grocery, Laramie . . . . .	" . . . . .	" . . . . .
552	"	Batavia Brand String Beans.	Sprague Warner Co., Chicago . . . . .	A. S. Peabody Grocery, Laramie . . . . .	" . . . . .	" . . . . .
553	"	Golden Wax Stringless Beans.	Curtis Bros. Co., Rochester, N. Y. . . . .	Lar. Grocery Co., Laramie	" . . . . .	" . . . . .
554	"	Standard String Beans. . . .	B. F. Shriver & Co., Union Mills, Md. . . . .	W. H. Holliday Co., Laramie . . . . .	" . . . . .	" . . . . .
555	"	Van Camp's Red Kidney Beans.	Van Camp Packing Co. . . . .	" . . . . .	" . . . . .	" . . . . .
560	"	Pork & Beans . . . . .	Kuner Pickle Co., Denver . . . . .	Gem City Groc., Laramie	" . . . . .	" . . . . .
561	"	Jumbo Brand Golden Wax Beans.	Miller Bros. Co., Baltimore, Md. . . . .	" . . . . .	" . . . . .	" . . . . .
565	"	Rex Brand Pork & Beans . .	Cudahy Packing Co. . . . .	Lynch Grocery, Laramie.	" . . . . .	" . . . . .
566	"	Independence Boston Baked Beans . . . .	Reid Murdoch Co., Chicago . . . . .	Lar. Grocery, Laramie . . .	" . . . . .	" . . . . .
667	"	Yankee Baked Beans . . . .	" . . . . .	" . . . . .	" . . . . .	" . . . . .
568	"	Pioneer Brand Baked Beans . .	Curtice Bros. & Co., Rochester, N. Y. . . . .	Gem City Groc., Laramie	" . . . . .	" . . . . .
572	"	Charm Brand String Beans . .	Utah Canning Co., Ogden, Utah. Franklin Mac Veagh, Chicago . . . . .	A. S. Peabody Grocery, Laramie . . . . .	" . . . . .	" . . . . .

\*Canned goods must be labeled with date of canning, month and year.

## Canned Goods—(Continued).

Labor No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained	Antiseptic	Remarks
588	May 2, 1904	Pure Food Brand Red Kidney Beans	Pure Food Preserving Co., Buffalo, N. Y.	A. S. Peabody Grocery, Laramie	Salicylic acid	Illegal
589	"	Gilt Edge Green Lima Beans	Fredonia Canning Co., Fredonia, N. Y.	Lynch Grocery, Laramie	"	"
590	"	Maryland Brand String Beans	Thomas J. Meyer & Co., Baltimore Md.	W. H. Holliday Grocery, Laramie	"	"
592	"	Monarch Brand Lima Beans	Reid Murdoch Co.	Peabody Groc., Laramie	"	"
604	"	Casino Brand, Extra Small Stringless Beans	Franklin Mac Veagh, Chicago	W. H. Holliday Grocery, Laramie	"	"
609	"	W. H. Lewis Boston Baked Beans	The Grocers Packing Co., Boston, Mass.	A. S. Peabody Grocery, Laramie	"	"
612	"	Puritan Brand Baked Beans	Paxton & Gallagher Co., Omaha	Lar. Grocery, Laramie	"	"
621	"	King's Baked Beans	H. J. Heinz Co., Pittsburgh	A. S. Peabody Co., Laramie	"	"
499	Feb. 23, 1904	Maple Leaf Brand Cream Corn	P. Hohenadel, Jr., & Co., Cassville and Janesville, Wis.	Adams & Young, Buffalo	none	
517	Mar. 9, 1904	Forest City Brand Sugar Corn	Forest City Canning Co., Forest City, Mo.	Zane & Richardson, Basin	Salicylic acid	Illegal
539	May 2, 1904	Putelope State Sugar Corn	Blair Canning Co., Blair, Neb.	A. S. Peabody Grocery, Laramie	"	"
542	"	Royal Blue Brand Sugar Corn	"	"	"	"
543	"	Batavia Brand Sugar Corn	Sprague Warner Co., Chicago, Ill.	"	"	"
559	"	Casino Brand Corn	Franklin Mac Veagh, Chicago	W. H. Holliday, Laramie	"	"
564	"	Faultless Brand Sugar Corn	Wayne County Preserving Co., Newark, N. Y.	Lar. Groc. Co., Laramie	"	"
580	"	Kelley's Export Sugar Corn	Kelley Canning Co., Waverly, Ia.	Lynch Grocery, Laramie	"	"
587	"	Club House Brand Extra Corn	Franklin Mac Veagh, Chicago	Gen City Groc., Laramie	"	"
594	"	Beatrice Sugar Corn	Lang Canning & Preserving Co., Beatrice, Neb.	A. S. Peabody Grocery, Laramie	"	"
596	"	Nemaha Valley Sugar Corn	Auburn Canning Co., Auburn, Neb.	"	"	"
400	Feb. 23, 1904	Corona Brand Wisconsin Early June Peas	Columbus Canning Co., Columbus, Wis.	Adams & Young, Buffalo	none	Soaked. Not labeled. Illegal.

## Canned Goods—(Continued).

Laboratory No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained.	Antiseptic	Remarks
531	May 2, 1904	Batavia Early June Peas . . .	Sprague Warner Co., Chicago . . .	A. S. Peabody Grocery, Laramie . . .	Salicylic acid	Illegal
532	"	Petits Pois . . . . .	Amicus Freres, Nantes & Paris . .	" . . . .	none	Copper greened. Il-legal.
533	"	Triumph Early June Peas . . .	Atlantic Canning Co., Atlantic, Ia.	Lynch Groc. Co., Laramie . . . .	Salicylic acid	Soaked peas. Not labeled. Illegal.
534	"	Butter Lily Sweet Wrinkled .	New Holstein Canning Co., New Holstein, Wis. . . . .	Lar. Grocery Co., Laramie . . . .	Salicylic acid	Illegal
545	"	Plymouth Brand Select Early June . . . . .	The Spencerport Packing Co., Spencerport, N. Y. . . . .	A. S. Peabody Groc. Co., Laramie . . . .	Salicylic acid	" " "
558	"	Empson's Champion Peas . . .	Empson Packing Co., Longmont, Colo . . . . .	" . . . .	Salicylic acid	" " "
563	"	Blue Label, Maid of the Mist Select Early June . . . . .	Curtis Bros. Co., Rochester, N. Y. . . . .	Lar. Groc. Co., Laramie . . . .	none	Soaked peas. Not labeled. Illegal.
571	"	Reception Brand Telephone Peas . . . . .	Chrisholm & Scott, Niagara Falls, N. Y. . . . .	Gem City Grocery Co., Laramie . . . .	Salicylic acid	Illegal
573	"	Butter Lily Sweet Wrinkled Peas . . . . .	Model City Preserving Co., Moda City, N. Y. . . . .	Lynch Groc. Co., Laramie . . . .	Salicylic acid	Copper greened. Il-legal.
578	"	Heart Brand Sweet Wrinkled Petits Pois . . . . .	New Holstein Canning Co., New Holstein, N. Y. . . . .	Peabody Grocery Co., Laramie . . . .	Salicylic acid	Soaked peas. Not labeled. Illegal.
579	"	Daisy Brand . . . . .	W. R. Roach & Co., Hart, Mich. . . . .	Lynch Groc. Co., Laramie . . . .	Salicylic acid	Illegal
586	"	Casino, Sifted Early June . . .	Barton Fils, Paris . . . . .	Peabody Grocery Co., Laramie . . . .	Salicylic acid	Copper greened. Il-legal.
593	"	Club House Extra Sifted . . .	Empson Packing Co., Longmont, Colo . . . . .	Peabody Grocery Co., Laramie . . . .	Salicylic acid	Soaked peas. Not labeled. Illegal
597	"	Extra Sifted Casino . . . . .	Franklin Mac Veach Co., Chicago . . . . .	W. H. Holliday Grocery Laramie . . . .	Salicylic acid	" " "
599	"		" . . . . .	Gem City Grocery Co., Laramie . . . .	Salicylic acid	" " "
600	"		" . . . . .	Holliday Grocery Co., Laramie . . . .	Salicylic acid	" " "
<b>Pumpkins</b>						
508	Feb. 23, 1904	Van Camp's Golden Pumpkin Blue Grass . . . . .	Van Camp Packing Co., Blue Grass Canning Co., Owensboro, Ky. . . . .	Adams & Young Buffalo Peabody Grocery Co., Laramie . . . .	none Salicylic acid	Illegal
557	May 2, 1904	La Junta Sugar . . . . .	La Junta Canning Co., La Junta, Colo. . . . .	Gem City Grocery Co., Laramie . . .	Salicylic acid	" "

## Canned Goods—(Continued).

No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained	Antiseptic	Remarks
569	May 2, 1904	Fort Madison . . . . .	Fort Madison Canning Co., Fort Madison, Ia.	Peabody Grocery Co., Holliday Grocery Co., Laramie . . . . .	Salicylic acid " " "	Illegal
617	"	Charm . . . . .	Franklin Mac Veagh, Chicago	Peabody Grocery Co., Gem City Grocery Co., Laramie . . . . .	" " "	"
619	"	Oriole. . . . .	Reid Murdoch Co., Chicago	Peabody Grocery Co., Holliday Grocery Co., Laramie . . . . .	" " "	"
<b>Tomatoes</b>						
500	Feb. 23, 1904	Tiger. . . . .	Platt & Co., Baltimore, Md.	Adams & Young, Buffalo	none	
510	"	Fairmont . . . . .	Fairmont Packing Co., Fairmont, Md.	" "	Salicylic acid	Illegal
515	Mar. 9, 1904	Golden Leaf. . . . .	W. W. Roberts Packing Co., Baltimore, Md.	Zane & Richardson, Basin	" "	"
547	May 2, 1904	Queen of Egypt . . . . .	Watson Canning & Packing Co., Watson, Ill.	Peabody Grocery Co., Laramie . . . . .	" " "	"
556	"	Scotland. . . . .	C. Smith, Hartford Furnace, Md.	Lynch Groc. Co., Laramie	" " "	"
562	"	Syracuse Standard . . . . .	Syracuse Canning Co., Syracuse, Utah	" " "	" " "	"
574	"	D. C. A. . . . .	Franklin Mac Veagh, Chicago	Gem City Groce., Laramie	" " "	"
576	"	Club House . . . . .	Utah Canning Co., Ogden, Utah	" " "	" " "	"
577	"	Pioneer. . . . .	Hooper Canning Co., Hooper, Utah	Peabody Groc., Laramie	" " "	"
585	"	Great Salt Lake . . . . .	Sprague Warner & Co., Chicago	" " "	" " "	"
595	"	Batavia. . . . .	Franklin Mac Veagh, Chicago	Holiday Groc., Laramie	" " "	"
606	"	Casino. . . . .	Kaysville Canning Co., Kaysville, Utah	" " "	" " "	"
616	"	Kaysville . . . . .	" . . . . .	" . . . . .	" . . . . .	"
<b>Sweet Potatoes</b>						
506	Feb. 23, 1904	Victory . . . . .	John Boyle Co., Baltimore, Md.	Adams & Young, Buffalo	" " "	
516	Mar. 9, 1904	Blue Bird . . . . .	J. F. Brady Co., Bridgeport, N. J.	Zane & Richardson, Basin	" " "	
540	May 2, 1904	New Jersey . . . . .	Anderson, N. J. Preserving Co.,	Lynch Groc. Co., Laramie	" " "	
608	"	Oval . . . . .	Booth Packing Co., Baltimore, Md.	Lar Groc. Co.,	" " "	"
618	"	Charm. . . . .	Franklin Mac Veagh, Chicago	Gem City Groc.,	" " "	"
622	"	Batavia. . . . .	" . . . . .	Peabody Groc. Co.,	" " "	"
				Sprague Warner & Co., Batavia . . . . .	" " "	

## Canned Goods—(Continued).

Lab'r. No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained	Antiseptic	Remarks
<b>Squash</b>						
607	May 2, 1904	Casino . . . . .	Franklin Mac Veagh, Chicago . . . . .	Holiday Grocery Co., Laramie . . . . .	Salicylic acid . . . . .	Illegal . . . . .
620	"	Maryland . . . . .	Thomas J. Meyer's Baltimore, Md. Gem City Groc., Laramie . . . . .	Adams & Young, Buffalo . . . . .	" . . . . .	" . . . . .
<b>Sauer Kraut</b>						
505	Feb. 23, 1904	Maple Leaf . . . . .	P. Hohenadel, Jr. & Co., Cassville, Wisc. . . . .	Adams & Young, Buffalo . . . . .	" . . . . .	Illegal . . . . .
544	May 2, 1904	Kuner's Home Made Sauer Kraut and Pork . . . . .	Kuner Pickle Co., Denver . . . . .	Gem City Groc., Laramie . . . . .	" . . . . .	" . . . . .
581	"	Sauer Kraut and Weinerwurst . . . . .	" . . . . .	Lynch Groc. Co., " . . . . .	" . . . . .	" . . . . .
<b>Asparagus</b>						
503	Feb. 23, 1904	Farm . . . . .	Hickmott Asparagus Canning Co., Cal. . . . .	Adams & Young, Buffalo . . . . .	" . . . . .	Illegal . . . . .
523	May 2, 1904	Casino . . . . .	Franklin Mac Veagh, Chicago . . . . .	Holiday Grocery Co., Laramie . . . . .	" . . . . .	" . . . . .
546	"	Signature . . . . .	R. Hickmott Asparagus Canning Co., Cal. . . . .	Lynch Groc. Co., Laramie . . . . .	" . . . . .	" . . . . .
591	"	Monarch . . . . .	Reid Murdoch & Co., Chicago . . . . .	Lar. Grocery Co., " . . . . .	" . . . . .	" . . . . .
<b>Beets</b>						
504	Feb. 23, 1904	Gilt Edge Baby Strawberry . . . . .	Fredonia Canning Co., Fredonia, N. Y. . . . .	Adams & Young, Buffalo . . . . .	" . . . . .	Illegal . . . . .
537	May 2, 1904	Telmo . . . . .	Franklin Mac Veagh, Chicago . . . . .	Holiday Grocery Co., Laramie . . . . .	" . . . . .	" . . . . .
582	"	Sweet . . . . .	Curtis Bros. Co., Rochester, N. Y. . . . .	Lar. Groc. Co., Laramie . . . . .	" . . . . .	" . . . . .
<b>Succatash</b>						
541	May 2, 1904	Casino . . . . .	Franklin Mac Veagh, Chicago . . . . .	Holiday Grocery Co., Laramie . . . . .	" . . . . .	Illegal . . . . .
583	"	Oriole . . . . .	Reid Murdoch & Co., " . . . . .	Gem City Groc., Laramie . . . . .	" . . . . .	" . . . . .
<b>Spinach</b>						
511	Feb. 23, 1904	Victory . . . . .	John Boyle Co., Baltimore, Md. . . . .	Adams & Young, Buffalo . . . . .	" . . . . .	Illegal . . . . .

## Canned Goods—(Continued).

Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained.	Antiseptic	Remarks
May 2, 1904	Yelmo . . . . .	Franklin Mac Veagh, Chicago . . . . .	Holiday Grocery Co., Laramie . . . . .	Salicylic acid	Illegal
May 2, 1904	Homany	Beber's Best . . . . . Ye Old Fashioned . . . . . Glenwood Home Made . . . . . Van Camp's Hulled Corn . . . . .	Reber Preserving Co., " . . . . . Empson Packing Co., Colorado . . . . . New Glenwood Canning Co., Ia . . . . . Van Camp Canning Co., "	none Sulphurous acid none Salicylic acid	Legal Illegal Legal Illegal
May 2, 1904	Soups	Mutton Broth . . . . . Mock Turtle . . . . . Beef . . . . . Vegetable . . . . .	Ensporn Packing Co., Colorado . . . . . " . . . . . Van Camp's Packing Co., Ind . . . . . Joseph Campbell Preserving Co.,	Peabody Groc., Laramie . . . . . " . . . . . Lynch Groc. Co., " " . . . . .	Salicylic acid " . . . . . " . . . . . " . . . . .
May 2, 1904		Tomato . . . . . Ox Tail . . . . . Mock Turtle . . . . .	New Jersey . . . . . Van Camp Packing Co., Ind . . . . . Franco American Food Co., Jersey City, N. J . . . . . Van Camps Packing Co., Ind . . . . .	Peabody Groc. Co., " Holliday Groc., " Kelly Groc. Co., Cheyenne . . . . . none	Coal tar dye. Illegal Illegal Legal
Mar. 9, 1904	Fruits	A. B. C. Apricots . . . . . Green Valley Pears . . . . .	Allen Bros. Co., Omaha, Neb . . . . . Suisun Canning Co., Suisun, Cal . . . . .	Zane & Richards, Basin . . . . . Blyth Fargo & Co., Evanston . . . . .	Salicylic acid " . . . . .
Mar. 26, 1904		Roanoke Peaches . . . . . Griffin Peaches . . . . . Casino Red Cherries . . . . . Festival Peaches . . . . .	Hunt Bros. Co., Haywards, Cal . . . . . C. I. Fruit Canning Ass'n, Cal . . . . . Franklin Mac Veagh, Chicago . . . . . Western Fruit Packing Co., Fresno, Cal . . . . .	Lar. Groc. Co., Laramie . . . . . Holliday Groc. Co., " " . . . . . " . . . . .	Illegal Illegal Legal
May 2, 1904		Festival Bartlett Pears . . . . . Festival Muscat Grapes . . . . . Eagle Blueberries . . . . .	Festival Bartlett Pears . . . . . Festival Muscat Grapes . . . . . Eagle Blueberries . . . . .	" . . . . . " . . . . . " . . . . .	" . . . . . " . . . . . " . . . . .
May 2, 1904		A. & R. Loggie, Loggieville, Canada			
May 2, 1903					

## Canned Goods—(Continued).

Lab. No.	Date of collection	Brand from label	Manufacturer or jobber	From whom and where obtained	Antiseptic	Remarks
605	May 2, 1904	Eastern White Cherries . . .	Griffin & Shelley, Fresno, Cal . . .	Lar. Grocery Co., . . .	Salicylic acid . . .	Illegal
611	"	Mt. Hamilton White Cherries . . .	San Jose Fruit Packing Co., Cal . . .	" . . .	" . . .	"
614	"	Griffin Extra White Cherries . . .	Cal. Fruit Canning Ass'n, Cal . . .	" . . .	" . . .	"
615	"	Casino Sliced Pineapple . . .	Franklin Mac Veagh, Chicago . . .	Holiday Groc. Co., . . .	" . . .	"
623	"	Griffin Extra Pears . . .	Cal. Fruit Growing Ass'n, Cal . . .	Lar. Groc. Co., . . .	" . . .	"
<b>Miscellaneous</b>						
509	Feb. 23, 1904	Macaroni and Cheese . . .	Van Camp's Packing Co., Ind . . .	Adams & Young, Buffalo	"	Coal tar dyes in small quantities.
610	May 2, 1904	Plum Pudding . . . . .	Richardson & Robbins, Dover, Del . . . . .	Holiday Grocery Co., Laramee	"	Illegal
584	"	Mushrooms . . . . .	Jules Gaston & Co., Lynch Groc. Co., Laramee	Bordeaux, France . . . . .	none	Legal

## DAIRY PRODUCTS.

## BUTTER.

Only one sample of butter has been secured. Butter is often adulterated with oleomargarine and colored with aniline dyes. The sample received, No. 282, from Dr. R. H. Reed, Rock Springs, seemed to be good and not adulterated.

## CHEESE.

Only two samples of cheese have been analyzed.

Sample No. 405, sent by Hon. W. J. Thom, Buffalo, Wyo., March 2, 1904. Result of analysis: Water, 21.57 per cent.; fat, 41.88 per cent. No coloring matter found of an injurious nature. Cheese of good quality.

Sample No. 466, sent by Dr. C. Dana Carter, Basin, Wyo. Result of analysis: Water, 26.80 per cent.; fat, 40.84 per cent. No coloring matter found of an injurious nature. Cheese of good quality.

## MILK.

Milk is very easily disorganized and affected by taint and impurities. Pure air, great care, sterilization of all vessels and ice are the proper methods of keeping it sweet and insuring the wholesomeness of this delicate and important food. Antiseptics replace this care, and their presence indicates inferior milk in addition to their harmful effect.

The question of pure milk is one of vital importance, and anyone who adulterates it is aiming a blow at the health and vigor of the rising generation. He is practicing a fraud most criminal.

If the food of a man is below standard—does not suit him—he has the privilege of rejecting it and can in a measure protect himself. This is not true of the infant; he must take what is fed to him or do without. He cannot protect himself. His food is often practically all of one kind—cow's milk—

which at best is a poor substitute for his natural food. He needs the best that may be procured for his perfect nourishment.

Adults—the father and mother—may drink adulterated milk with impunity, but it must be remembered that it is only a small portion of their daily food, while milk mixed with a little sugar may be the only food which their baby receives. His health and vigor depend upon his proper nourishment.

Milk is adulterated by (1) skimming,\* (2) watering, (3) addition of antiseptics and (4) by coloring matter. Adulteration of the first and second class is easily detected. Often times coloring matter is added to give the skimmed or watered milk a rich appearance. Formaldehyde is the antiseptic generally found in preserved milk. It is sold under such names as "Preservaline," "Milk Sweet," "Freezine," etc., at prices many times the cost of the material. Milk dealers are careful to conceal the fact that preservatives are used. They are helped in this by the dealers in milk preservatives, who ship the goods under an assumed name.

Formaldehyde is made from wood alcohol by extracting some of the hydrogen. Its properties, other than being a powerful antiseptic, are not very well known.

Blyth, in "Foods; Their Composition and Analysis," p. 237, makes this statement:

"Trillat and Berlioz have shown that 0.8 grain injected in a single dose subcutaneously into guinea pigs produces rapid death; poisonous effects, but not fatal, are produced by quantities from 0.53 to 0.66 grain; while 0.0338 grain produces no apparent symptoms. It is evidently excreted by the kidneys, for the urine of animals thus treated does

\*Milk dealers will find it to an advantage, if before serving customers from a can, they turn the milk into an empty can, in that manner stirring it throughout. It is a popular idea that because the milk wagon has been hauled rather rapidly over roads that are not always the best, for a couple of hours before peddling the milk that the milk is thoroughly mixed. This is a mistaken idea as a full can of milk does not mix well. This fact may account for many of the complaints that skimmed milk is being served to the customers. No one will complain because they are getting more than their share of cream in the milk.

not putrify like other urine. If it affects a man in anything like the same proportions as a guinea pig, a man weighing 150 pounds would require at a single dose about 17 grams (nearly a table spoonful) in order to produce any appreciable effect, and probably even more than this, for organic poisons generally act less energetically when swallowed than when introduced directly into the circulation or beneath the skin."

Although a large dose may be taken with little apparent effect, it is possible that continual small doses have a cumulative effect. It retards digestion and thus interferes with the proper nutrition.

The Departmental Committee on Food Preservation, etc., 1901, recommended that the addition of formaldehyde to milk be absolutely prohibited.

A weak solution of formaldehyde is used as an embalming fluid by specimen collectors of small animals and also by undertakers.

Carelessness and filth in the care of milk is almost criminal. Milk readily absorbs gases, and it is a breeding ground for disease germs of all kinds. The care should begin with the comfort and the nourishment of the milch cows and through every process until the milk has reached the customer.

## Milk.\*

Laboratory No.	Date of collection	Dealer and where collected	Specific gravity	Fat, per cent.	Solids not fat, per cent.	Total solids, per cent.	Ash, per cent	Interpretation
203	Oct. 13, 1903	Mrs. Isberg, Laramie . . .	1.0347	4.00	9.16	13.16	..	Legal milk
204	Oct. 20, 1903						..	"
206	Oct. 22, 1903	N. E. Corthell, Laramie . . .	1.0328	4.30	10.20	14.50	..	"
207	Oct. 23, 1903	Mr. Pryor, Laramie . . .	1.0349	4.70	9.80	14.50	..	"
208	Oct. 26, 1903	Mrs. Isberg, " . . .	1.0354	6.00	10.19	16.19	..	"
311	Jan. 30, 1904	Unknown, Cheyenne . . .	1.0249	1.75	7.06	8.81	.53	Watered. Formaldehyde present. Illegal milk
312	"	" . . .	1.0280	2.00	8.21	10.21	.63	Watered. Illegal milk
313	"	" . . .						Formaldehyde (?). Milk sour
314	"	Mrs. E. L. Holmes, Laramie . . .	1.0319	4.40	9.00	13.40	..	Formaldehyde present. Illegal milk
315	Jan. 31, 1904	Mrs. Isberg, Laramie . . .	1.0359	6.40	10.40	16.80	..	Legal milk
316	Feb. 3, 1904	Unknown, Laramie . . .	1.0328	4.40	9.22	13.62	..	"
318	Feb. 4, 1904	Mrs. Isberg, " . . .	1.0320	4.00	8.94	12.94	..	"
323	Feb. 5, 1904	McCue Dairy, " . . .	1.0323	4.25	9.07	13.32	..	"
324	Feb. 6, 1904	" . . .	1.0320	3.60	8.86	12.46	..	"
325	"	George Dairy, " . . .	1.0329	3.80	9.12	12.92	..	"
326	"	Doherty D'ry, " . . .	1.0330	4.50	8.09	12.59	..	"
328	"	William Dittman, Cheyenne . . .	1.0310	2.85	8.46	11.31	.56	Doubtful. Low in solids
329	"	Anthony Robitaille, Cheyenne . . .	1.0310	2.35	8.36	10.71	.59	" "
330	"	" . . .	1.0310	2.40	8.37	10.77	.56	" "
331	"	W. H. Gill, " . . .	1.0350	2.80	9.45	12.25	.71	Legal milk
332	"	" . . .	1.0343	3.10	9.33	12.43	.59	"
333	"	Johnny Sloan, " . . .	1.0330	4.45	9.28	13.73	..	"
334	"	" . . .	1.0350	4.00	9.69	13.69	..	"
335	"	" . . .	1.0355	3.65	9.75	13.40	..	"
336	"	" . . .	1.0330	4.10	9.15	13.25	..	"
337	"	Mr. Lawson, " . . .	1.0335	2.20	8.96	11.16	.70	Skimmed. Illegal milk
338	"	" . . .	1.0343	3.10	9.34	12.44	.76	Legal milk
339	"	Mrs. Riechen, " . . .	1.0314	2.15	8.42	10.57	.64	Low in solids and fat
341	"	Mr. Johnson, " . . .	1.0210	2.40	5.81	8.21	.45	Watered. Illegal milk
342	"	Apex Dairy, " . . .	1.0342	4.25	9.44	13.79	..	Formaldehyde present
343	"	" . . .	1.0320	3.70	8.98	12.68	..	"
403	Mar. 12, 1904	Barnes Dairy, Laramie . . .	1.0330	4.15	9.22	13.37	..	Legal milk
421	Mar. 10, 1904	E. B. Davis, Laramie . . .	1.0300	7.50	8.74	16.24	..	Not good sample. Stripplings
424	Mar. 11, 1904	D. N. Stickney, " . . .	1.0322	4.60	9.11	13.71	..	Legal milk
425	Mar. 12, 1904	F. Richard, " . . .	1.0336	6.60	8.86	15.46	..	"
426	"	Johnson Dairy, " . . .	1.0342	4.60	9.61	14.21	..	"
475	Mar. 26, 1904	Unknown, Evanston . . .	1.0330	3.80	9.15	12.95	.63	"
340	Feb. 6, 1904	Cheyenne Creamery Co., Cheyenne . . .		23.20	..	..		Is cream
317a	Feb. 3, 1904	C. B. Brannon, Laramie . . .	1.0330	4.50	9.29	13.79	..	Legal milk
317b	"	" . . .	1.0310	6.60	9.21	15.81	..	"
317c	"	" . . .	1.0315	4.60	8.94	13.54	..	"
317d	"	" . . .	1.0328	4.60	9.16	13.76	..	"
317e	Feb. 2, 1904	" . . .	1.0360	1.00	9.34	10.34	..	Skimmed by purchaser
317f	Feb. 3, 1904	" . . .	1.0310	4.40	8.77	13.17	..	Legal milk

\*Legal milk should run 12 per cent. total solids, 2.4 per cent. butter fat and not preserved with a chemical preservative.

## Condensed Milk.

Laboratory No.	Manufacturer	Brand	Label	Date of collection, 1904	From whom and where obtained	Capacity of can, oz.
468	Borden's Cond. Milk Co., New York.	Columbia	Evap. cream	Mar. 9	Zane & Richardson, Basin, Wyo.	10
469	Helvetia Milk Cond'sing Co., Highland, Ill.	Economy	Evap. cream	Apr. 1	E. D. Metcalf, Buffalo	10
470	Borden's Cond. Milk Co., New York.	Columbia	Evap. cream	"	E. D. Metcalf, Buffalo	10
471	St. Charles Condensing St. Charles, Ill.	St. Charles	Evap. cream	"	E. D. Metcalf, Buffalo	10
472	Helvetia Milk Cond'sing Co., Highland, Ill.	Highland	Evap. cream	"	E. D. Metcalf, Buffalo	10
474	Borden's Cond. Milk Co., New York.	Winner	Cond. milk	"	E. D. Metcalf, Buffalo	10
476	Anglo-Swiss Cond. Milk Co., New York.	Rose	Cond. milk	Mar. 26	Dawson & Burdette, Evanston	10
473	Borden's Cond. Milk Co., New York.	Eagle	Cond. milk	Apr. 1	E. D. Metcalf, Buffalo	10
625	Unknown.	Silver	Evap. cream	May 2	Gem City Gro. Co., Laramie	10
626	Anglo-Swiss Cond. Milk Co., New York.	Imperial	Evap. cream	"	W. H. Holliday G. Co., Laramie	10
627	Colorado Cond. Milk Co., Fort Lupton, Colo.	Columbine	Evap. cream	"	A. S. Peabody G. Co., Laramie	10
628	Anglo-Swiss Cond. Milk Co., New York.	Superb	Evap. milk	"	Lynch Grocery Co., Laramie	10
629	Pacific Coast Cond. Milk Co., Kent, Wash.	Carnation	Cream	"	A. S. Peabody G. Co., Laramie	14½

## Condensed Milk.

Laboratory No.	Price per can, cts.	Fat	Solids	Water	Ash	Polarization at 18 deg. centigrade		Cane sugar	Original milk calculated from ash, using 7 per cent. as normal ash			Remarks
						Direct	Invert		Concen- tra- tion	100 ppts. con- densed to	Fat in orig- inal milk	
468	15	7.50	27.80	72.20	1.63	+7.7	...	Unsweet- ened	2.33	42.92	3.22	Moderate condensation
469	15	6.75	25.73	74.27	1.50	+6.8	...	"	2.14	46.73	3.15	Small condensation
470	15	7.20	27.82	72.18	1.64	+7.5	...	"	2.34	42.73	3.08	Moderate condensation
471	15	8.00	28.42	71.58	1.52	+7.5	...	"	2.17	46.08	3.68	Small condensation
472	20	8.40	28.16	71.84	1.53	+6.9	...	"	2.19	45.66	3.84	" "
474	15	9.60	73.52	26.48	1.71	+49.2	-9.68	43.61	4.27	23.48	4.01	Good "
476	15	7.10	74.48	25.52	1.96	+50.4	-3.08	39.61	4.90	20.40	2.42	" "
473	20	9.81	75.12	24.88	1.80	+52.8	-7.26	44.49	4.50	22.22	3.89	" "
625	10	8.40	29.09	70.91	1.54	+7.1	...	Unsweet- ened	2.20	45.45	3.82	Small. " Illegal. No mfr. name on label
626	10	10.60	31.33	68.67	1.73	+7.7	...	"	2.47	40.08	4.29	Moderate condensation
627	10	9.00	31.68	68.32	1.79	+7.8	...	"	2.56	39.06	3.52	" "
628	10	8.00	27.43	72.57	1.37	+7.3	...	"	1.94	51.54	4.12	Small "
629	15	8.20	25.05	74.95	1.24	+6.9	...	"	1.77	56.49	4.63	" "

## EXTRACTS.

Lemon oil will not mix with water, and many of the lemon extracts on the market, when poured into water, will mix perfectly with it, showing no lemon oil to be present. Many of these so-called lemon extracts are extracts of a plant popularly called lemon grass. It smells very similar to lemon, but the extract contains no oil. Lemon oil is almost colorless, and extracts made with alcohol and pure lemon oil are colorless. The yellow lemon color is often present from the peel of the lemon, but this yellow color is more often added artificially as an aniline dye.

Vanilla extract is the alcoholic extract of the vanilla bean. Much of the vanilla extract on the market is made artificially by extracting the tonka bean and adding a coloring matter and other materials. Commarin is one of the substances extracted from the tonka bean, which is a decided narcotic; is at first a stimulant, and in large doses may produce paralysis of the heart.

Wood alcohol is sometimes found in extracts in place of the more costly wine alcohol.

## Extracts—Lemon.

Laboratory No.	Date of collection	Brand	Manufacturer or jobber.	Of whom and where obtained	Alcohol per cent.	Oil of lemon oil per cent.	Specific gravity	Color	Asph	Remarks
226	Nov. 18, '03	Pride	Miller's	Adams & Young, Buffalo.	35.85	none	.9453	.24	.04	Illegal
257	Nov. 16, '03	Miller's	Price Extract Co.	64.49	1.7	.8808	.08	0.1	Illegal	
268	Feb. 23, '04	Dr. Price's	Buffalo.	75.00	7.37	.8450	.44	.01	Legal	
269	"	Schilling's Best	Schilling & Co.	"	75.77	18.32	.8420	.26	none	Very high grade
270	"	Gilletts	E. W. Gillett Co., Chicago.	"	79.48	6.29	.8414	.08	none	Illegal
487	Sept. 30, '03	Burnett's	Joseph Burnett	Peabody Grocery, Laramie.	86.16	8.62	.8198	.22	none	Good quality
488	Sept. 14, '03	Hardesty's	Hardesty Mfg Co., Denver	"	81.26	10.22	.8232	.27	none	Illegal
489	Sept. 30, '03	Challenge.	Croft & Reed's	Unknown	65.58	4.41	.8600	.11	none	Below standard

\*Illegal to use aniline colors.

†What we pay for in buying lemon extract. Standard 5 per cent lemon oil.

## Extracts—Vanilla.

Laboratory No.	Date of collection	Brand	Manufacturer or jobber	Of whom and where obtained	Alcohol by weight per cent.	Specific gravity	Vanillin	Coumarin	Asph	Sugar	Remarks
225	Mar. 18, '03	Pride Brand			1.0110	14.08	.25	.03	8.12	.38	4.45 Artificial. Illegal. Not labeled
255	Mar. 16, '03	Miller's	Hardesty Mfg Co., Denver, Colo.	1.0325	18.91	.10	.05	16.11	14.10	.90	Illegal compound
271	Sept. 14, '03	Challenge.	Peabody Grocery Co., Laramie.	1.0160	29.68	.43	.02	18.79	.25	12.64	" "
292	Sept. 30, '03	Croft's & Reed's	Croft & Reed, Chicago.	Laramie	.9814	34.52	.66	.05	10.99	.23	7.88

### JELLIES, PRESERVES, ETC.

Only nine samples of this class of goods were analyzed. Eight were adulterated. Very little of the commercial jelly is made from pure fruit juices. It is generally made as a by product of fruit canneries. The parings and waste from the fruit are utilized for the flavor, and gelatine and glucose are added. Artificial acid and a coloring matter, generally an aniline dye, are added and the product sold as jelly.

A similar statement may be made in regard to jam, preserves, etc.

Often a chemical preservative is added to insure its keeping qualities.

## Jellies, Preserves, Etc.

Labo- ratory No.	Date of collection	Brand from label	Manufacturer	Where and from whom obtained	Preservative*	Remarks				
					Direct polariza- tion inverta- tion polariza- tion	Invert polariza- tion fructose per cent.	Cane sugar, fructose, per cent.			
298	Dec. 15, '03	Grape Jelly . . .	Davenport Refining Co., Davenport, Ia.	E. D. Mercalf, Buffalo, Wyo.	Present . . .	Present . . .	Dye . . .	Starch present. An artificial jelly. Not enough sample for complete analysis		
231	Nov. 18, '03	Munroe Peach Preserves . . .	Munroe Pres'v Co., Rochester, N. Y.	"	Present . . .	Present . . .	Natural Aniline dye	Benzoinic acid	Illegal	
232	"	Munroe Raspberry Preserves . . .	Curtis Bros., Rochester, N. Y.	"	Present . . .	Present . . .	"	"	"	
494	Feb. 23, '04	Extra Quality Fresh Fruit Raspberry Jam	Adams & Young Buffalo, Wyo.	+53.6	+25.30	18.57	21.11	Natural Coal tar dye	"	
496	"	Maple Leaf Kasp- berry Preserves . . .	Williams Bros., "	"	+92.0	+91.96	52.57	"	"	
493	"	Southwark Peach Jam . . .	American Preserv- ing Co., " " " " "	"	+117.8	+109.12	63.61	6.48	Natural	
495	Feb. 3, '04	Genesee White Cherry Jam . . .	Sprague, Warner & Blyth, Fargo & Co., Chicago, Ill.	+58.0	-14.96	None	54.49	"	"	
230	Nov. 18, '03	Otoe Apple Butter . . .	Otoe Pres'v Co., Otoe City, Neb.	"	"	"	"	"	Some caramel pres- ent; formed prob- ably in cooking.	
492	Feb. 23, '04	Apple Jelly . . .	American Preserve Co., Philadelphia	Adams & Young Buffalo, Wyo.	+81.1	+44.90	31.70	31.31	Natural	Illegal

\*It is illegal to use chemical preservatives.

## MEATS, FISH, OYSTERS, ETC.

In general, sausages contain antiseptics, usually borax, and are often colored with an aniline dye.

Corn starch, or starchy material, is invariably added to keep them from having a shrunken appearance when cooked. Starch to the amount of 3 per cent. cannot be called an adulteration, but if the amount is greater it is generally added to absorb water and increase the weight, and would rightfully be considered an adulteration.

Chickens and small game come on the market wrapped in borax to preserve them. This is cheaper than refrigeration, although refrigeration may be used and borax added to make doubly sure.

Fish is generally shipped into the State in cold storage. Only one sample of fish has been inspected. It was very soft and disintegrated between the fingers. The general appearance otherwise and the taste was good. This fish had been frozen and allowed to thaw. Some authorities advocate condemning the sale of fish which has been frozen, as it readily undergoes decomposition and poisonous ptomaines are quickly formed, which may produce serious results. After fish has once been frozen, it should be used within a short time. The time between thawing and cooking should not be over twenty-four hours, at most.

We have yet to receive a sample of bulk oysters offered for sale in Wyoming that has not been preserved with an anti-septic. All that we have inspected have contained formaldehyde. The source of the supply is a great distance from the consumer in this State, but there is no reason why Wyoming should be favored with "embalmed" oysters while other States as far from the source of supply get theirs preserved by a legitimate method, refrigeration.

## Meats, Fish, Oysters, Etc.

Label No.	Brand or kind	Brand or kind	Producer	Of whom and where obtained	Preservative	Remarks
210	Sept. 14, '03	Armour's Bacon . . .	Armour Packing Co . . .	Rock Springs . . . . .	Formaldehyde . . . . .	Of inferior quality
202	Sept. 15, '03	Bacon . . . . .	Booth Packing Co., Denver . . .	A. S. Peabody Co., Laramie . . . . .	Formaldehyde . . . . .	Good quality
407	Mar. 1, 1904	Booth's Bulk Oysters . . .	Towson Bros. Market, " . . .	Laramie Meat Co., Laramie . . . . .	Formaldehyde . . . . .	Illegal oysters
427	" 12. "04	" . . . . .	Laramie Meat Co., " . . . . .	" . . . . .	" . . . . .	"
451	" 21. "04	" . . . . .	Unknown . . . . .	" . . . . .	" . . . . .	"
477	" 26. "04	Oysters . . . . .	Unknown . . . . .	Unknown, Evanston . . . . .	" . . . . .	"
478	" 29. "04	" . . . . .	Unknown . . . . .	MacIntyre Rest'r, Laramie . . . . .	" . . . . .	"
482	Feb. 23, '04	Cherry Stone Lch Oys. . .	Martin Wagner, Baltimore . . .	Adams & Young, Buffalo . . . . .	" . . . . .	"
483	" . . . . .	Dog's Head Cove Oys. . .	" . . . . .	" . . . . .	" . . . . .	"
484	" . . . . .	Extra Select Oysters . . .	Unknown . . . . .	Popular Meat Mkt., Laramie . . . . .	" . . . . .	"
450	Mar. 21, '04	Tripe . . . . .	Unknown . . . . .	Laramie Meat Co., Laramie . . . . .	Boric acid . . . . .	Illegal tripe
410	" 5. "04	Wienerwurst . . . . .	Hammond Packing Co., Cheyenne . . . . .	" . . . . .	" . . . . .	Illegal meat; corn starch, 3.12 per cent.
452	" 22. "04	" . . . . .	Unknown . . . . .	Towson Bros. Meat Co., Laramie . . . . .	None . . . . .	Illegal meat; contains corn starch
521	Jan. 29, 1904	Fish Salmon . . . . .	Cudahy Packing Co . . . . .	Lynch Gro. Co., Laramie . . . . .	Boric acid . . . . .	Soft; had been frozen and allowed to thaw
613	May 2, 1904	Rex Brand Corn Beef . . .	Unknown . . . . .	Laramie Meat Co., Laramie . . . . .	Boracic acid . . . . .	Illegal meat
453	Mar. 22, '04	Meat Preservative . . . . .	" . . . . .	" . . . . .	" . . . . .	Illegal
454	" . . . . .	" . . . . .	" . . . . .	" . . . . .	" . . . . .	"
455	" . . . . .	" . . . . .	" . . . . .	" . . . . .	" . . . . .	Corn starch and aniline dye. Illegal
456	" . . . . .	Sausage Dye . . . . .	" . . . . .	" . . . . .	" . . . . .	Corn starch and aniline dye. Illegal

## PICKLES AND RELISHES.

The most common adulterant of this class of goods is artificial coloring matters. Green pickles, such as cucumbers, lose their deep green color to an extent after pickling, and this is replaced artificially by use of copper salts. Copper salts or alum also fixes the green color. Salts containing copper are very poisonous and should not be used in foods.

## TOMATO CATSUP.

Of the five samples of tomato catsup analyzed, all were found to be adulterated. Artificial coloring matter and anti-septics are used universally in the composition of tomato catsup. It is probable that a large amount of these products are made from the tomato cores and skins, which are by-products of the various tomato canning factories.

Poor grades of catsup are often put up in barrels or tanks, and this material supplied to restaurants to fill up old bottles. Catsup prepared in this manner is very liable to spoil, and often the retailer adds more antiseptic to stop fermentation during the time he is compelled to keep it in stock.

## Relishes and Pickles.

Laboratory No.	Date of collection	Name taken from label	Manufacturer or jobber	Of whom and where obtained	Preservative	Color	Remarks
264		California Home Brand, Ceylon Relish . . . . .	California Packing Co., San Francisco	McDermott & Co., Rock Springs . . . . .	Salicylic acid	Natural	Illegal
265		Olivette Relish . . . . .	Seville Packing Co., New York	Cheyenne . . . . .	"	"	"
409	Feb. 23, '04	English Spiced Gherkins . . . . .	Williams Bros. Co., Detroit	Adams & Young, Buffalo . . . . .	None	Copper	Illegal
485	Mar. 9, 1904	Midset Gherkins . . . . .	H. J. Heinz Co., Pittsburgh	Zane & Richardson, Basin . . . . .	Benzoic acid		
486	Mar. 26, '04	Centaur Brand Mixed Pickles . . . . .	Pacific Vinegar and Pickle Works, San Francisco . . . . .	Dawson & Burdette, Evans-ton . . . . .	None	None	

## Catsup and Sauce.

Laboratory No.	Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained	Preservative	Color*	Remarks
227	Nov. 18, '03	Pride Brand Special . . . . .		Denver . . . . .	Salicylic acid	Aniline	Illegal
228	"	Pride Catsup . . . . .		"	Benzoic acid	"	"
408	Feb. 2, '04	Columbia Catsup . . . . .	Mullen-Blackledge Co., Indianapolis	Dawson & Burdett, Evanston . . . . .	"	"	"
411	Feb. 23, '04	Standard Catsup . . . . .	American Preserving Co., Philad'l'a	Adams & Young, Buffalo . . . . .	"	"	"
417	"	Oyster Cocktail Sauce . . . . .	T. A. Snyder Mfg. Co., . . . . .	Dawson & Burdett, Evans-ton . . . . .	Benzoic acid	"	"

\*The aniline colors are coal tar dyes.

† Not enough of samples to complete test for preservative.

## SPICES AND CONDIMENTS.

Spices probably suffer wholesale adulteration that is not equaled in any other class of goods. Generally harmless adulterants are used, as cocoanut shells, ground peanuts, flour, bran and wheat products. The purchaser in that case is paying for something he doesn't get. Often times the essential oils are partly extracted from the spice, thereby supplying two trades from the same spice. Again, the adulterated spices are of necessity weaker, and to make up the loss something stronger is added. Black pepper is a good example. Wheat products may be added, followed by a small amount of red pepper. The microscope generally reveals the fraud, unless the spice has been extracted; then we must resort to a chemical analysis.

## Spices—Not Adulterated.

Family No.	Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained
Pepper				—, Denver, Colo.
221	Nov. 18, 1903.	Pride Brand Black Pepper.		
222	"	Pride Brand White Pepper.		
234	Nov. 16, 1903.	Penang Brand White Pepper.		
"	"	Penang Brand Black Pepper.		
258	Oct. 1, 1903.	Schilling's Best Black Pepper.	A. Schilling & Co., San Francisco	Hugh's Grocery Co., Rawlins
273	Dec. 5, 1903.	Schilling's Selected Black Pepper.	Sprague-Warner Co., Chicago	A. S. Peabody Grocery Co., Laramie
"	"	"	"	"
275	Oct. 20, 1903.	"	"	"
288	Dec. 15, 1903.	Schilling's Best Pepper.	A. Schilling & Co., San Francisco	E. D. Metcalf, Buffalo
350	Jan. 26, 1904.	Penang Brand.	E. B. Miller & Co., Chicago	Olhausen Bros. Grocery Co., Cheyenne
362	Feb. 6, 1904.	Royal Brand Black Pepper.	Dwinell, Wright & Co., Boston	Dineen Bros. Grocery Co., Cheyenne
429	April 28, 1904.	Schilling's Best Black Pepper.	A. Schilling & Co., San Francisco	A. Schilling & Co., San Francisco
430	"	Schilling's Best White Pepper.	"	"
433	Feb. 2, 1904.	Golden Gate White Pepper.	J. A. Folger & Co., San Francisco	Dawson & Burdett, Evanston
Allspice				A. Schilling & Co., San Francisco
440	Feb. 28, 1904.	Schilling's Best.		—, Denver
243	Nov. 16, 1903.	Penang Brand.		A. S. Peabody Co., Laramie
441	Sept. 14, 1903.	Royal Braud.		Dawson & Burdett, Evanston
Cloves				A. Schilling & Co., San Francisco
239	Nov. 16, 1903.	Penang Brand.		—, Denver
251	"	Excelsior Brand.		A. S. Peabody Co., Laramie
303	Sept. 14, 1903.	Royal Brand.		Dawson & Burdett, Evanston
460	Feb. 2, 1904.	Golden Gate Brand.		"
"	"	J. P. S. Brand.		"
462	Feb. 28, 1904.	Schilling's Best.		A. Schilling & Co., San Francisco
Ginger				—, Denver
240	Nov. 16, 1903.	Penang Brand.		F. H. Eggleston, Druggist, Laramie
250	"	Excelsior Brand.		A. S. Peabody, Grocery Co., Laramie
261	Nov. 11, 1903.	Royal.		Grand Union Tea Co., Brooklyn
302	Sept. 14, 1903.	Grand Union Tea.		Sprague-Warner Co., Chicago
348	Jan. 26, 1904.	Batavia.		Paston & Gallagher Co., Omaha
356	Feb. 6, 1904.	Monogram.		A. Schilling & Co., San Francisco
446	Feb. 23, 1904.	"		Adams & Young, Grocery Co., San Francisco
447	Feb. 28, 1904.	Schilling's Best.		"

## Spices—Not Adulterated—(Continued).

Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained
Nov. 236	Cinnamon and Cassia	Penang Brand Cassia . . . . .	_____, Denver
236	Nov. 16, 1903.	Excelsior Brand Cassia . . . . .	_____, "
232	"	Schilling's Best . . . . .	A. Schilling & Co., San Francisco . . . . .
443	Feb. 28, 1904.		
224	Cayenne	Pride Brand . . . . .	_____, Denver
245	Nov. 18, 1903.	Excelsior . . . . .	_____, "
239	Nov. 16, 1903.	Fernell . . . . .	W. H. Holliday Grocery Co., Laramie . . . . .
309	Dec. 12, 1903.	" . . . . .	" . . . . .
309	Jan. 15, 1904.	" . . . . .	Underwood Grocery Co., Cheyenne . . . . .
358	Feb. 6, 1904.	Batavia . . . . .	A. Schilling & Co., San Francisco . . . . .
457	Feb. 28, 1904.	Schilling's Best . . . . .	
242	Chilli	Penang Mexican Chilli . . . . .	_____, Denver
242	Nov. 16, 1903.		
301	Mustard	Colman's . . . . .	J. J. Colman, England . . . . .
448	Sept. 14, 1903.	Schilling's Best . . . . .	A. Schilling & Co., San Francisco . . . . .
28	Feb. 28, 1904.		
249	Nutmegs	Excelsior . . . . .	A. Schilling & Co., San Francisco . . . . .
463	Nov. 16, 1903.	Schilling's Best . . . . .	Paxton & Gallagher, Omaha . . . . .
465	Feb. 28, 1904.	Monogram . . . . .	
244	Mace	Penang . . . . .	A. Schilling & Co., San Francisco . . . . .
464	Nov. 16, 1903.	Schilling's Best . . . . .	
361	Sage	Royal . . . . .	Dwinell, Wright & Co., Boston . . . . .
			A. Schilling & Co., San Francisco . . . . .
			Dinneen Bros. Grocery Co., Cheyenne . . . . .

## Spices—Adulterated.

Spice	Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained	Adulterant
<b>Pepper</b>					
246	Nov. 16, '03	Excelsior White Pepper	McCord-Brady Co.	Denver . . . . .	Corn starch and pepper husks
247	"	Excelsior White Pepper	McCord-Brady Co.	Denver . . . . .	Starch
248	Dec. 15, '03	Pure Pepper	McCord-Brady Co.	E. D. Metcalf, Buffalo . . .	Wheat flour and pepper husks
249	"	Bulk Pepper	McCord-Brady Co.	" . . . . .	Coconut shells, corn starch, sage meal
365	Feb. 6, '04	Grocers' Mills White Pepr	Sprague-Warner Co., Chicago	Vreeland & Stone, Cheyenne	Wheat flour, nut shells, cayenne pepper, mustard, cayenne pepper, shells, wood, mustard, corn starch
367	"	Grocers' Mills Fine Pepper	Eagle Mills, Denver	" . . . . .	Corn meal in abundance
373	Feb. 3, '04	Bulk White Pepper	Eagle Mills, Denver	H. B. Enigh, Cheyenne . . .	Nut shells, cayenne
431	Feb. 2, '04	Winter Brand Black Pepr	Winter Spice Co., Chicago	Blyth, Fargo & Co., Evanston	Ground olive stones, coconut shells, cayenne pepper, rye flour
432	"	Continental Mills Black Pepper	Unknown . . . . .	Dawson & Burdette, "	
<b>Allspice</b>					
220	Nov. 18, '03	Pride Br'dn Borneo Allspice	Eagle Mills Bulk	Denver . . . . .	Clove stems
248	Nov. 16, '03	Excelsior Jamaica Allspice	Eagle Mills Bulk	" . . . . .	"
366	Feb. 6, '04	Grocers' Mills	Eagle Mills Bulk	Vreeland & Stone, Cheyenne	Burnt shells, corn starch, clove stems, rape seed husks
370	"		Eagle Mills Bulk	H. B. Enigh, Cheyenne . . .	Corn starch, nut shells, wood and other products not identified
442	Feb. 23, '04	Monogram	Paxton & Gallagher, Omaha	Adams & Young, Buffalo . . .	Clove stems
<b>Cloves</b>					
217	Nov. 18, '03	Pride Brand	Pride Brand	Denver . . . . .	Clove stems
259	Nov. 11, '03	Bulk	Pride Brand	W. H. Holiday Gro., Laramie	Allspice
307	Jan. 19, '04	Bulk	Pride Brand	" . . . . .	Starch, small quantity
347	Jan. 26, '04	Gauntlet Brand	Pride Brand	The Cash Grocery, Cheyenne	Small quantity allspice
351	"	Grocers' Mills	Pride Brand	Union Mercantile Co.,	Chiefly burnt olive stones and coconut shells
360	Feb. 6, '04	Our Own	Pride Brand	Underwood Gro., Cheyenne	Allspice
459	Feb. 23, '04	Monogram	Pride Brand	Adams & Young Gro., Buffalo	Clove stems

## Spices—Adulterated—(Continued.)

Sample No.	Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained	Adulterant
Ginger	223 Nov. 18, '03 304 Jan. 13, '04 3352 Jan. 26, '04 363 Feb. 6, '04 372 .....	Pride Brand . . . . . Ceylon Spices . . . . . Grocers' Mills . . . . . “ “ “ . . . . . Eagle Mills Bulk . . . . .	Franklin, McVeagh & Co., Chi. Sprague-Warner Co., Chicago Union Mercantile Co., Cheyenne “ . . . . . Eagle Mills, Denver, Colo. . . . .	Denver, Colo. . . . . Gem City Gro. Co., Laramie Union Mercantile Co., Cheyenne “ . . . . . Freeland & Stone, Cheyenne . . . . . H. B. Emigh, Cheyenne. . . . .	Wheat products Sage and turmeric Corn starch in large quantities, wood and cayenne pepper Abundance of corn meal
Cinnamon	219 Nov. 18, '03 260 Nov. 11, '03 306 Jan. 13, '04 308 Jan. 19, '04 349 Jan. 26, '04 371 Feb. 6, '04 444 Feb. 23, '04 445 .....	Pride Brand Cinnamon . . . . . Bulk Cinnamon . . . . . Choices Colburn Cin'amom . . . . . Bulk Cinnamon . . . . . Winter Bränd Cinnamon . . . . . Eagle Mills, Denver . . . . . McCord-Brady Co., Omaha . . . . . Sprague-Warner Co., Chicago . . . . .	A. Colburn Co., Philadelphia A. Colburn Cin'amom . . . . . Winter Spise Co., Chicago . . . . . Winter Spise Co., Chicago . . . . . Eagle Mills, Denver . . . . . McCord-Brady Co., Omaha . . . . . Sprague-Warner Co., Chicago . . . . .	W. H. Holliday Gro., Laramie Gem City Gro. Co., Laramie W. H. Holliday, Laramie Union Mercantile, Cheyenne H. B. Emigh, Cheyenne . . . . . Adams & Young, Buffalo . . . . . Peabody Gro., Laramie . . . . .	Is cassia Misrepresented: is cassia Ginger and rape seed husks Misrepresented: is cassia bark Short weight; misrepresented: is cassia bark Misrepresented: is cassia and corn starch Misrepresented: is cassia bark Cassia bark . . . . .
Cayenne	305 Jan. 13, '04 364 Feb. 6, '04 458 Mar. 5, '04	Ceylon Spices . . . . . Grocers' Mills . . . . . “ . . . . .	Franklin, MacVeagh & Co., Chicago . . . . . Sprague-Warner Co., Chicago . . . . . “ . . . . .	Gem City Grocery, Laramie Freeland & Stone, Cheyenne . . . . . Laramie . . . . .	Corn starch, wheat products and wood fiber Sawdust, nut shells, allspice Nut shells, sawdust, starch
Mustard	218 Nov. 16, '03 238 Nov. 16, '03 233 .....	Pride Brand . . . . . Penang “ . . . . . Excelsior Brand . . . . .	Denver, Colo. . . . . “ . . . . . “ . . . . .	Wheat flour “ . . . . . “ . . . . .	Practically nothing but wh't flour Turmeric and starch

## Spices—Adulterated—(Continued).

Labora- tory No.	Date of collection	Name taken from label	Manufacturer or jobber	From whom and where obtained		Adulterant
				Adulterant		
Sage						
237	Nov. 16, '03	Penang Brand Sage . . . . .		—, Denver, Colo. . . . .		Wheat flour
254	"	Excelsior Brand Sage . . . . .		" . . . . .		Corn starch
357	Feb. 6, '04	Batavia Brand . . . . .	Sprague-Warner Co., Chicago	Underwood Gro., Cheyenne	" . . . . .	Wheat flour
359	"	Penang Brand Pow'd Sage . . . . .	E. B. Miller & Co., Chicago	" . . . . .		Corn starch
Savory*						
267		Bell Brand, Poultry Seas'ng	Wm. G. Bell Co., Boston . . .	—, Laramie . . . . .	Contains sage, pepper, ginger	
436	Feb. 2, '04	Mountaineer Brand Savory	Mount'neer C. & S. Ms., San F.	Dawson & Burdette, Evanston	Contains sage, pepper, mustard	
437	Mar. 5, '04	Grocers' Mills Savory . . . . .	Sprague-Warner Co., Chicago	—, Laramie . . . . .	" . . . . .	"
Celery Salt						
263	Jan. 18, '04	Colburn's Octagon Brandt	A. Colburn Co., Philadelphia	A. S. Peabody Gro., Laramie		Contains celery seed, corn starch, rape seed husks, common salt 35 per cent.

\*Should be labeled with ingredients.  
At a rate of \$1.07 pound.

## VINEGARS.

Originally vinegar was the product of the fermentation of fruit juices, generally apple or grape, known respectively as apple and wine vinegar. Now, vinegar can be more properly called a dilute form of acetic acid. The common sources from which vinegar is now produced are apple, malt, refuse wine in the grape countries, the low wine from distilleries, and the dry distillation of wood.

The great demand for apple vinegar causes manufacturers of low wine and wood vinegar to put their product on the market under fraudulent names. Wood vinegar must be colored, as it is generally very clear when first made, and artificial solids are often added.

Vinegar made from the dry distillation of wood is probably more healthful than is apple vinegar, as it is a pure product, containing none of the foreign substances which apple vinegar contains. Wood vinegar has not, however, the delicate flavor that gives apple vinegar the preference. Wood vinegar may be made very cheaply, and is often sold for apple vinegar at a great profit. Distilled vinegars must be sold as such, and coloring matters added during or after distillation are prohibited.

## Vinegar.

Laboratory No.	Date of collection	Brand	Manufacturer or jobbe	From whom and where obtained	Specific gravity	Percent. acid	Solids	Ash	Color	Remarks
209	Oct. 7, '03	Unknown . . .	Unknown . . . . .	Peabody Gro. Co., Laramie	1.0085	3.01	.745	.043	. . . . .	Illegal. Low in acid and solids
276	Dec. 15, '03	Heinz Distilled Rye Malt	Heinz Pickle Co., Smith Refining Co., Heinz Pickle Co., . . . . .	Elmer Beltz, Laramie . . . . .	1.0145	3.87	1.819	.431	Caram'l	Illegal. Low in acid and solids
295	"	Heinz Cider . . .	Metcalf, Buffalo . . . . .	Metcalf, Buffalo . . . . .	1.0077	5.03	.170	.020	. . . . .	Distilled vinegar
296	"	Rye Malt	" . . . . .	" . . . . .	1.0183	11.58	.490	.100	Caram'l	Illegal. Distilled
297	"	Heinz Cider . . .	" . . . . .	" . . . . .	1.0148	4.78	2.240	.280	" . . . . .	Illegal. Imitation cider vinegar
369	Feb. 6, '04	Malt . . . . .	Cross & Blackwell, London . . . . .	Vreeland & Stone, Chey'ne Dawson & Binnett, Ev'ston . . . . .	1.0145	5.22	2.100	.230	" . . . . .	Illegal
383	Feb. 2, '04	Cider . . . . .	" . . . . .	Adams & Young, Buffalo . . . . .	1.0145	5.43	1.840	.260	" . . . . .	" . . . . .
420	Feb. 23, '04	Heinz Pickle Co. . . . .	Heinz Pickle Co. . . . .	Denver . . . . .	5.30	2.290	.270	None	Pure cider vinegar	
438	Mar. 16, '04	Distilled Wine . . . . .	Kuner Pickle Co. . . . .	Zane & Richardson, Basin . . . . .	1.0134	7.15	.450	.000	" . . . . .	
467	" 9, '04	Unknown . . . . .	Unknown . . . . .	Basin . . . . .	1.0096	6.48	.440	.040	Caram'l	Illegal. Colored, distilled vinegar
479	" 26, '04	" . . . . .	" . . . . .	Blyth, Fargo & Co., Ev'ston . . . . .	1.0085	5.07	.260	.030	Caram'l	" . . . . .

## ALCOHOL.

Alcohol is adulterated by adding water and by adding wood alcohol. The water only makes the alcohol weaker and water is not expensive. Wood alcohol is extremely poisonous and should never be mixed with anything that may be for internal or external use, unless properly labeled.

## SOME TERMS DEFINED.

“Proof” is about twice the percentage of alcohol by volume; 100-proof alcohol is 50 per cent. alcohol by volume; 200-proof is absolute alcohol.

“Rectified spirits” is the name given to the most concentrated alcohol by ordinary distillation without the use of a fractionating column. It is described as containing 84 per cent. by weight of alcohol, having a density of 0.838 and is 177-proof.

“Silent spirits” is the name given to the better quality of distilled spirits, for the fact that it is impossible to determine the origin. “Silent spirits” contain no fusel oil and only traces of aldehydes.

## Alcohol.

Laboratory No.	Date of collection	Where obtained	Of whom obtained	Specific gravity	Alcohol, per ct., by volume	Water, per cent.
378	Jan. 28, 1904 . . .	Laramie . . .	Johnson & Goodale . . .	.8246	92.50	7.50
379	“ . . .	“ . . .	A. H. Cordiner . . .	.8238	92.80	7.20
380	“ . . .	“ . . .	F. H. Eggleston . . .	.8235	93.20	6.80
399	Feb. 5, 1904 . . .	“ . . .	Johnson & Goodale . . .	.8350	89.33	10.67

### SUGAR, SYRUP, HONEY, CANDY.

Granulated sugar is one of the uniformly pure products on the market. It is very seldom adulterated.

Syrups and molasses are often adulterated with glucose. Glucose is much cheaper and has not as high a food value as has cane sugar. Maple syrups are universally adulterated without a doubt, and it is admitted that a large quantity of maple syrup is not made from maple sap at all, but from other sugars, flavored with hickory or maple wood.

Strained honey is adulterated with glucose. When prices are high comb honey is adulterated by feeding the bees cane sugar. Attempts have been made to manufacture artificial comb of paraffin, but it is found too soft and the melting point too low. Even when a small amount of paraffin is added to comb and used for "starters" in the frames the heat melts it and the whole falls to the bottom.

Candy is adulterated with starch, talc or other material to give body, and glucose may be added. Aniline dyes are added to give inviting colors. Candy, like milk, should be especially free from adulterations, because of the fact that it is eaten largely by children.

## Sugar, Syrups and Candy.

Laboratory No.	Date of collection	Brand	Manufacturer or jobber	Of whom and where obtained
229	Nov. 18, '03	Maple Syrup . . . . .	Hudson Pack'g Co., N.Y	—, Denver . . . . .
233	"	Quebec Maple Syrup . .	Towle Syrup Co., St. Paul	" "
293	Dec. 15, '03	Geanga Pure Ohio Maple Syrup . . . . .	Smith Refining Co. . . . .	E. D. Metcalf, Buffalo .
294	"	Old Mause Pure Maple Syrup . . . . .	Wm. R. Manierre, Chicago . . . . .	" "
300	Jan. 5, 1904	Pure Ohio Maple Sap . . . . .	A. L. Eggleston, Bissell's, O . . . . .	Doug. Mc. Co., Douglas
353	Jan. 26, 1904	Richilien Pure Maple Syrup . . . . .	Syrague Warner, Chicago . . . . .	—, Cheyenne . . . . .
354	"	Pierre Vians Pure Maple Syrup . . . . .	Pierre Vians, Quebec, Canada . . . . .	" "
385	Feb. 5, 1904	Paragon Rock Candy Drips . . . . .	John Scowcroft & Sons Co., Ogden, Utah . . . . .	Evanston Cash Grocery, Evanston . . . . .
386	"	Old Mause Maple Syrup . . . . .	Wm. R. Manieri . . . . .	" "
387	Feb. 3, 1904	P. V. Pure Maple Syrup . . . . .	Pierre Vians, Quebec . . . . .	B. Fargo & Co., Evanst'n
388	Feb. 2, 1904	Pure Canada Maple Sap . . . . .	St. Paul Syrup Ref. Co. . . . .	Dawson & Burd't, "
412	Feb. 23, 1904	Maple Cane Syrup . . . . .	G. W. Goyer, Memphis . . . . .	Adams & Young, Buffalo
413	"	Sugar Creek Sorghum . . . . .	—, Allendale, Mo. . . . .	" "
415	"	Santee Syrup . . . . .	Ill. Sugar Ref. Co. Sold by Paxton & Gallagher, Omaha . . . . .	" "
416	"	P. V. Pure Maple Syrup . . . . .	Pierre Vians, Quebec . . . . .	" "
481	Mar. 31, '04	Pure Maple Sap Syrup . . . . .	Welch Bros. Maple Co. . . . .	Holliday Co., Laramie
497	Apr. 12, 1904	P. V. Pure Maple Syrup . . . . .	Pierre Vians . . . . .	Paxton & Gallagher, Omaha . . . . .
414	Feb. 23, 1904	Baker's Choice New Orleans Molasses . . . . .	Paxton & Gallagher Co., Omaha . . . . .	Adams & Young, Buffalo
423	Mar. 5, 1904	Louise Plantation New Orleans Molasses . . . . .	Smith Refining Co., Council Bluffs, Ia. . . . .	Laramie Gro. Co., Laramie . . . . .
480	Mar. 26, '04	Powd. Sugar . . . . .	Unknown . . . . .	Dawson & Burdette, Evanston . . . . .
389	Jan. 5, 1904	Square Pink Candy . . . . .	" . . . . .	Hasenkamp, Laramie . . . . .
390	"	Pink Marshmallow Fish . . . . .	" . . . . .	" "
391	"	Cocoanut Ribbon . . . . .	" . . . . .	" "
392	"	Red Candy Strawberries . . . . .	" . . . . .	Laramie Gro., "
393	"	White Bucket Candy . . . . .	" . . . . .	" "
394	"	Yellow " . . . . .	" . . . . .	" "
395	"	Red " . . . . .	" . . . . .	" "
396	"	Lavender " . . . . .	" . . . . .	" "
397	"	Chocolate Drops . . . . .	" . . . . .	A. S. Peabody Gr., "
398	"	Mint Lozengers . . . . .	" . . . . .	" "
439	Mar. 17, '04	" . . . . .	" . . . . .	Laramie Gro., "
498a	May 9, 1904	White Bucket Candy . . . . .	" . . . . .	Zane & Rich'ds'n, Basin
498b	"	Pink " . . . . .	" . . . . .	" "
630	June 1, 1904	Strained Honey . . . . .	" . . . . .	A. S. Peabody, "

## Sugar, Syrups and Candy.

Laboratory No.	Polarization at 18 degrees				Water, per cent.	Ash, per cent.	Remarks	
	Direct	Invert	Cane sugar, per cent.	Reducing sugar per cent.				
229	+28.8	-21.56	37.44	26.78	None	34.52	.26	Partly molasses. Illegal
233	+119.6	+98.12	15.85	28.00	55.00	29.08	.33	Almost straight glucose. Free sulphuric acid, .09 per cent.
293	+41.6	-22.00	46.42	15.12	None	36.77	.28	Sulphurous acid present. Adulterated. Illegal
294	+59.2	-22.22	59.43	4.88	"	33.98	.23	Pure maple syrup
300	+71.0	-23.76	70.45	...	"	28.08	...	"
353	+64.0	-23.76	65.99	1.37	"	32.25	.23	"
354	+62.6	+1.76	45.74	13.21	Present	32.94	.22	Adulterated. Illegal
385	+142.6	+138.60	3.01	34.33	70.00	25.86	.69	Adulterated. Represented to be 60 per cent. glucose and 40 per cent. sugar syrup. Illegal
386	+58.4	-21.78	60.29	5.98	None	33.62	.25	Pure maple syrup
387	+60.2	+1.98	43.77	14.68	Present	33.62	.20	Adulterated. Illegal
388	+62.2	-11.44	63.97	3.36	None	32.25	.29	Pure maple syrup
412	+119.6	+83.82	26.59	20.53	50.00	22.85	.25	Adulterated. Illegal
413	+114.6	+96.80	13.23	30.17	65.00	20.26	.97	Adulterated. Almost straight glucose syrup. Illegal
415	+139.4	+137.28	1.59	30.05	50.00	24.52	.43	Adulterated. Almost straight glucose syrup. Illegal
416	+70.4	-1.98	53.81	5.28	?	33.13	.17	Doubtful
481	+60.4	-20.57	60.42	2.04	None	35.87	.25	Pure maple syrup
497	+63.5	-20.68	62.82	2.21	"	33.61	.31	"
414	+27.0	-18.92	33.52	19.96	"	21.11	4.16	
423	+128.4	+117.70	7.98	25.95	68.00	18.52	1.59	Almost straight glucose syrup. Illegal
480	+99.4	...	99.40	...	...	...	...	
389	+100.0	-9.28	82.16	...	...	...	...	
390	...	...	...	...	...	...	...	
391	...	...	...	...	...	...	...	
392	...	...	...	...	...	...	...	
393	+109.0	+10.12	73.80	...	Present	...	...	
394	+109.0	+10.12	73.80	...	"	...	...	
395	+109.0	+10.12	73.80	...	"	...	...	
396	+109.0	+10.12	73.80	...	"	...	...	
397	...	...	...	...	...	...	...	
398	+104.0	-16.28	89.70	...	...	...	...	Contain corn starch filler
439	+106.2	-7.70	85.64	4.52	...	5.03	.16	" " " 2.4 per cent.
498a	+107.0	-6.60	83.83	5.73	...	4.80	.14	
498b	+107.0	-6.60	83.83	5.73	...	4.80	.14	A coal tar dye. Illegal
630	-16.4	-20.24	2.99	72.84	None	14.66	.05	Pure honey

## ALCOHOLIC BEVERAGES.

Alcoholic liquors appear to be adulterated to a marked extent, and much of it cannot be easily detected.

A very common practice in brewing beer is to use corn, rice or a little raw barley, and sometimes grape sugar as a substitute for part of the malt. The grape sugar is used because of its cheapness, but the unmalted grains are used as adjuncts to the malt to produce a lighter beer. Malt contains an excess of albuminoids, which is apt to produce cloudiness in bottled beer, and a little rice tends to reduce the difficulty.

Preservatives are used to a greater or less extent to prevent after fermentation. The best brewers Pasteurize their beer, which kills the yeast plants and effectually stops fermentation. The most common preservatives, as we have found, are fluorides and sulphites. Sulphites are generally present in beer in small quantities. The hops in the process of curing are subjected to sulphur dioxide vapors, and the malt is treated in a similar manner to prevent mould. In many breweries calcium bisulphite is used as an antiseptic wash, and often times small amounts enter the beer in this manner.

An allowance of 10 milligrams of sulphites, as barium sulphate, to 100 cubic centimeters of beer is made.

Whisky is aged by putting into oak casks, which are usually slightly charred on the inside. The whisky extracts from the wood a little tannin and coloring matter, and the alcohols are oxidized, forming volatile ethers, which lend a pleasant aroma to the liquor. This process takes years and is very expensive. The modern process is to artificially age the liquor by adding the ingredients, tannin and coloring matter, along with volatile ethers. Usually a little old whisky is mixed with the new. The practice of blending makes it almost impossible to detect the adulteration. The artificial product seems to be chemically about the same as the aged liquor, but the physiological effects are different.

Wines often contain preservatives. Champagne is artificially carbonated to resemble the bottle fermentation.

## Alcoholic Beverages.

Laboratory No.	Date of collection	Brand	Manufacturer	From whom and where obtained	Specific gravity	Alcohol, per cent.	Extract, per cent.	Ash, per cent.	Acidity, per cent.	Preservative	Remarks
216	Dec. 7, 1903	Feldschloeschen Beer	Laramie Brewing Co., Laramie	—, Laramie . . .	1.0100	2.72	.72	.17	.12	None	Low in alcohol
277	" 10, 1903	Cabinet Beer	Fred Krug Brewing Co., Omaha	—, Rock Springs	1.0118	3.92	4.61	.15	.13	"	
278	"	Pabst Export Beer	Pabst Brewing Co., Milwaukee	—, " . . .	1.0175	3.36	6.09	.13	.17	"	
279	"	Export Extra Pale Beer	Sweetwater Brdg Co., Green River	—, " . . .	1.0132	3.32	4.98	.14	.15	"	
319	Jan. 21, 1904	Tony Faust Beer	B. Cornwell, Laramie	John A. Fisher, " . . .	1.0143	4.36	5.26	.17	.14	Flourides	Illegal
315	"	Lemp's Beer	John A. Fisher, " . . .	John A. Fisher, " . . .	1.0125	3.22	4.79	.11	.18	None	
376	"	Zang's High Grade Beer	P. H. Zang Brewing Co., Denver	W. Johnson, " . . .	1.0173	3.48	6.09	.17	.12	Sulphites	"
377	"	Coors' Pure Export Beer	A. Coors, Golden, Colo.	John A. Fisher, " . . .	1.0193	2.72	6.26	.14	.12	None	"
381	"	Krug's Select Beer	Fred Krug Brewing Co., Omaha	Otto Schwatke, " . . .	1.0119	3.96	4.65	.16	.14	Sulphites	"
382	"	Budweiser Lager Beer	Anheuser-Busch Brewing Ass'n.	Bailey Cornwell, " . . .	1.0153	3.00	5.08	.14	.17	Sulphites	"
418a	Mar. 5, 1904	"	" . . .	G. A. Rosin, " . . .	1.0148	4.04	5.72	.13	.14	"	"
418b	"	"	" . . .	" . . .	1.0150	4.00	5.75	.13	.13	"	"
435	Apr. 2, 1904	Falstaff Beer	Wm. J. Lemp Brewing Co., Billings, Mont.	J. A. Fisher, " . . .	1.0105	4.21	4.61	.12	.16	None	
490	Mar. 9, 1904	Pilsner Export Beer	Zane & Rich's'n, Basin	1.0135	4.23	5.60	.15	.12	Sulphites		
281	Dec. 10, 1903	8Yr-old Bourbon Whisky	Rock Springs	93284270	.19	.01	.06	"	"	None	
461	Mar. 9, 1904	Whisky	Zane & Rich's'n, Basin	.946937531102	.05	.02					

\*The writer found that the presence of the sulphites was due to carelessness on the part of the workmen. Calcium bisulphite is used for cleansing by the brewers. These samples are all from the same brew.

## MISCELLANEOUS ANALYSES.

## CREAM OF TARTAR.

No. 241—Penang brand. Manufacturers, E. B. Miller & Co., Chicago. Cream of tartar, 99.2 per cent. No adulterants.

No. 321—Purchased September 14, 1903. Bulk cream tartar. Retailer, Peabody Grocery Company. No adulterants.

No. 404—Purchased February 23, 1904. Brand, Schilling's Best. Manufacturers, A. Schilling & Co. Retailers, Adams & Young, Buffalo. Cream tartar, 99.42 per cent. No adulterants.

## TEA.

No. 201—Sent by Douglas Mercantile Company, Douglas, Wyo. Date, October 19, 1903. Brand unknown. Retailer, Douglas Mercantile Company. No adulterants.

## COFFEE.

No. 406—Purchased January 11, 1904. Arbuckle's Ariosa brand. Retailer, A. S. Peabody Company, Laramie. Manufactured by Arbuckle Bros. Labeled Coffee Compound. A pure coffee glazed with egg and sugar. No adulterants.

## GELATINE.

One sample of gelatine was analyzed, sample No. 262, Plymouth Rock Phosphated gelatine, bought of A. S. Peabody Company, Laramie, March 2, 1904. Results of analysis. Free phosphoric acid, 7.41 per cent. Colored with a red coal-tar dye. Sample illegal.

## PATENT MEDICINES.

One sample of patent medicine has been received, sample No. 428, Liquozone, manufactured by the Liquozone Company of Chicago, contained in brown glass bottle, white label with red and black letters.

Circulars and pamphlets describe it as a cure for catarrh, asthma, hay fever, grippe, women's diseases, stomach and

bowel troubles, throat troubles, skin diseases, nervous debility, kidney troubles, blood poison, a disinfectant and germicide. Takes fourteen days to make, and is liquid oxygen.

Analysis showed the liquid to be water, containing large quantities of sulphur dioxide, a little sulphur and some sulphuric acid. Is essentially a saturated solution of sulphur dioxide. It is a fraud.

#### ILLUMINATING OIL.

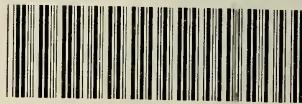
Two samples of illuminating oil have been received and analyzed.

Sample No. 280—February 13, 1904. Marked illuminating oil. From Dr. R. H. Reed, Rock Springs. Flash, 81° F. Burning point, 102° F.

Sample No. 419—March 9, 1904. Marked coal oil. From Hon. W. J. Thom, Buffalo, Wyo. Flash, 89.5° F. Burning point, 101.5° F.

The law requires a burning point of 120° F., so neither of these oils meet the requirement.

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